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# Issues in vocational assessment for adolescents with learning disabilities : a bibliographic study

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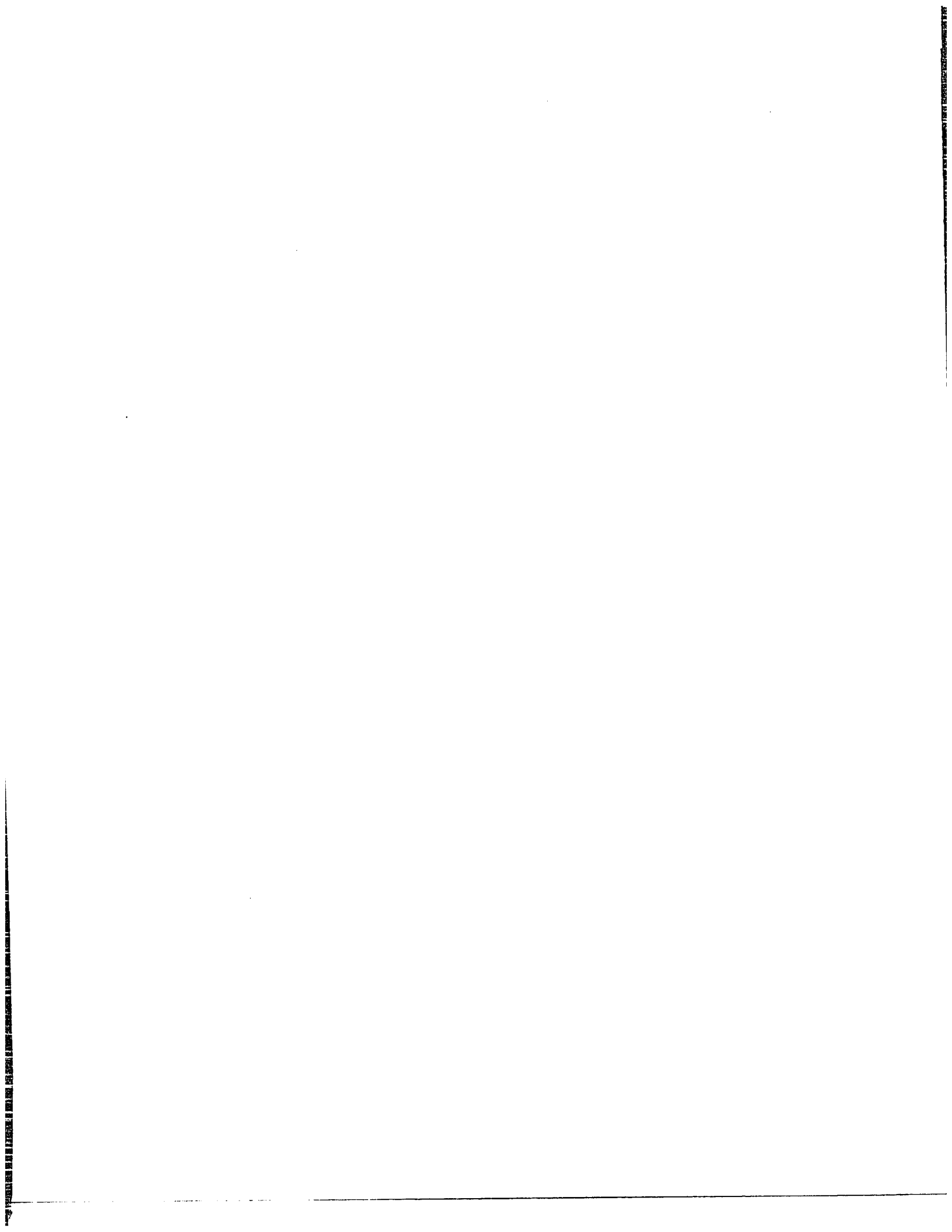
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Fourt, Barbara K., M.A.

San Jose State University, 1990

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ISSUES IN VOCATIONAL ASSESSMENT  
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A BIBLIOGRAPHIC STUDY

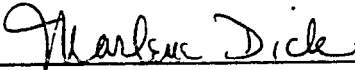
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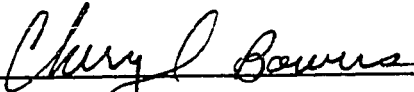
In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

By  
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August, 1990

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## **ABSTRACT**

### **ISSUES IN VOCATIONAL ASSESSMENT FOR ADOLESCENTS WITH LEARNING DISABILITIES: A BIBLIOGRAPHIC STUDY**

by Barbara K. Fourt

Vocational assessment programs for students with learning disabilities have grown markedly in recent years. Purposes, as originally developed in the rehabilitation field, are to predict vocational potential, to prescribe appropriate vocational placements and/or services, and to serve as a form of treatment. This study examines the literature in both the rehabilitation and the education fields to determine whether research supports the effectiveness of vocational assessment for these purposes for students with learning disabilities.

The literature review revealed some promising studies, but the research was neither consistent nor extensive. There were some indications that assessment is effective for predicting which students are ready for placement in regular vocational education programs, and for prescribing appropriate training placements. Assessment generally was not effective in developing other components of educational planning. The process of participation in vocational assessment may also have some positive impact upon the student. Further research needs are extensive.



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## CHAPTER I

### INTRODUCTION

#### Background

Unemployment among young adults with handicaps has been identified as a significant national problem. General follow-up studies of graduates of special education programs indicate high rates of unemployment among these young adults (Copra, cited in Allen-Meares, 1988; Hasazi, Gordon, & Roe, 1985; Mithaug, Horiuchi, & Fanning, 1985; National Institute of Handicapped Research, cited in Allen-Meares, 1988; Social Security Administration, cited in Brolin & Elliott, 1984; Wise & Matthews, 1987). More specifically, unemployment statistics for former students with learning disabilities or other mild handicaps are also cause for concern (Fardig, Algozzine, Schwartz, Hensel, & Westling, 1985; F. J. Hoffman et al., 1987; McGuire, Archambault, Gillung, & Strauch, 1987; Sitlington, Frank, & Cooper, 1989). These employment figures may not tell the whole story. Even among the employed, several studies have indicated that underemployment is common among former students with mild handicaps (Corthell & Van Boskirk, 1984; Fafard & Haubrich, 1981; Humes & Brammer, 1985; Sitlington et al., 1989; White et al., 1982, 1983), and that other aspects of postsecondary

career/vocational adjustment may be problematic as well (Hursh, 1984). Crawford, Crawford, and Faas (1987) note that a successful transition from high school to employment has been beyond the reach of more than half of the nation's students with learning disabilities.

Lack of appropriate vocational programming while in high school has been cited as a significant contributor to the career/vocational problems of adolescents and young adults with learning disabilities (Razeghi & Davis, 1979; Szuhay et al., 1980; D. F. Thomas, 1986), and, conversely, appropriate programming in career/vocational development has been associated with successful transition in related populations (Hudson, Schwartz, Sealander, Campbell, & Hensel, 1988). Although 10 to 12 percent of the school age population is disabled, only 2.1 percent of students enrolled in vocational education are disabled (Corthell & Van Boskirk, 1984). Noting that only 21 percent of the 650,000 handicapped youth who leave school each year will become fully employed, Corthell and Van Boskirk assert that "Schools must have as a primary mission the preparation of youth for work in a saleable occupational skill area so they may become independent and self-supporting citizens" (p. 4).

Madeleine Will, as Assistant Secretary of the Office of Special Education and Rehabilitative Services (OSERS) in 1984, acknowledged these concerns and established the preparation of special needs students for successful employment as a national priority (Will,

1984). The "transition movement" took hold. Transition from school to work was identified as "the educational priority of the 80's" (West, 1988, p. 2), and a variety of transition services were developed, for the purpose of facilitating a smooth transition from school to work for special needs students.

Vocational assessment has become one of these recommended transition services. In their survey of OSERS model transition projects, D'Alonzo and Owens (1985) identified vocational assessment as a needed service. A survey completed by Peterson (1985d) indicated that the use of vocational assessment in special education programs had expanded at that time, and that considerable further expansion was projected. Chase, Izzo and Dunfee (1987) estimate that over 17,000 vocational assessment centers were established across the country during the 1985-86 and 1986-87 school years.

The growth of vocational assessment programs for individuals with learning disabilities has been fueled, in part, by federal legislation. In the rehabilitation field, the diagnosis of specific learning disabilities was first recognized as an eligible diagnosis for rehabilitation services in 1980, leading to the availability of Department of Rehabilitation funds in 1981 for services for individuals with learning disabilities (Gerber, 1981; Miller, Mulkey, & Kopp, 1984). These services include vocational assessment, which

was already well-established in rehabilitation facilities for use with other populations. In the education field, The Carl D. Perkins Vocational Education Act of 1984 (P.L. 98-524) promoted access to vocational training programs for special needs students, and required that an assessment of interests, abilities and needs be provided for all special needs students who enroll in vocational education (Dougherty, 1987).

In addition to the legal requirements, vocational assessment for special needs students has found considerable professional support in the education literature. Many writers have described the important contributions of vocational assessment to the career/vocational development of special needs students. Tindall and Gugerty (1986) state that "A student's chances of succeeding depend upon a careful placement, which in turn is related to the student's vocational assessment" (p. 12). Mori (1982) provides another example:

If a special needs student is to derive maximum benefit from a career/vocational program, then the best possible match must be made between the student's profile of individual strengths and weaknesses and the characteristics of the career program or job placement. . . . Thus, comprehensive career assessment is of paramount importance. (p. 41)

L. A. Phelps and McCarty (1984) make a similar statement:

Vocational assessment plays a critical role in providing appropriate career programming for handicapped youth. The extent to which educators are able to systematically and effectively evaluate the career development needs of handicapped students will, in large measure, determine the

efficacy of the individualized programs provided to these individuals. (p.30)

These writers suggest, then, that vocational assessment will lead to more appropriate preparation for and selection of vocational training programs and/or jobs for special needs students. Given this guidance and preparation, students should be more likely to experience success in vocational training and/or job placements. Presumably, with vocational assessment and other transition services in place, unemployment figures among handicapped youths should decrease. On this premise, vocational assessment programs for special needs students, including learning disabled (LD) students, have been developed in recent years.

### **Statement of the Problem**

Despite the growth in vocational assessment programs for LD students in recent years, many issues about vocational assessment remain unresolved. The early optimism expressed regarding its usefulness has been tempered for some practitioners and researchers by the practical difficulties that have become evident in its implementation. Meehan and Hode11 (1986) acknowledge that the need for vocational assessment and subsequent individualized program planning is clear in the literature and in legislation. However, they note that the "high unemployment rate of handicapped students exiting programs as well as the difficulties reported in assessing special needs students indicate a need to analyze the impact of

vocational assessment activities" (p. 107). Neubert (1986a) cautions that "In general, vocational evaluation as it has been adapted for use in the public schools lacks an extensive base of empirical and interpretive research" (p.98). Similar statements regarding the lack of research to establish the effectiveness of vocational assessment are common in the literature, both referring to vocational assessment in general (Barad, 1972; Herbert & Menz, 1981; Hursh, 1984; Spergel, 1970; Wilkins, 1983) and referring to its use with the learning disabled in particular (Hursh, 1984; Krantz, 1970; W. R. Phelps, 1981; Szuhay et al., 1980). Does vocational assessment make an effective contribution to the career development of LD students? What are its specific contributions? Are these questions answered in current research? The importance of these issues is related both to the magnitude of the career/vocational difficulties encountered among LD youth, and to the proportion of educational resources currently being directed toward vocational assessment in an effort to address this problem.

### **Purpose of the Study**

Vocational assessment programs continue to grow and develop within educational settings. It is essential that questions regarding the purpose and effectiveness of vocational assessment in these settings be addressed, so that programs can be developed which are grounded in principles established through research.



The purpose of this study is to determine if current research supports the efficacy of vocational assessment for learning disabled high school students in the United States. In the study, a number of questions have been identified regarding the effectiveness of vocational assessment services for this population, and relevant literature has been examined to determine if any research-based answers to these questions can be provided at present. Synthesizing the available information regarding these questions provides a basis for understanding which aspects of vocational assessment are supported with research, and which areas need further investigation.

It should be noted that many different models exist for the delivery of vocational assessment services for this population, ranging from informal, curriculum-based assessments, to brief paper-pencil testing, to extensive, hands-on assessments with work samples. Within this broad range of assessment services, there is considerable variation in the terminology used in the literature. Some authors use the terms "vocational evaluation" and "vocational assessment" interchangeably (McCray, 1982). Others use "vocational evaluation" as a broad term which encompasses vocational assessment (Kiernan & Petzy, cited in Cobb & Larkin, 1985). Still others use "vocational assessment" as a broad term which includes vocational evaluation (Peterson, 1985e). For purposes of this research paper, all models of assessment are included under the umbrella term "vocational assessment." At times, studies are cited

in which the terms "vocational evaluation," or "work evaluation" are used, meaning a form of assessment which uses real or simulated work as one of its assessment modalities. When such studies are described, the terminology selected by the study's author(s) is used, with the understanding that, within the definitions outlined in this research paper, vocational evaluation and work evaluation are considered subcategories of vocational assessment.

### **Research Questions**

This study addresses several issues regarding the purposes and effectiveness of vocational assessment for learning disabled high school students. An overview of these issues follows.

First, one of the proposed purposes of vocational assessment for special needs high school students is *predicting* vocational success (Menz, 1978; McCray, 1982). Does research support the use of vocational assessment for this purpose for LD students?

Second, vocational assessment is also thought to have a *prescriptive* value; that is, it should provide information for developing an appropriate plan for the student's career/vocational development (Menz, 1978; McCray, 1982). Is there research to support the use of vocational assessment in this way? Can vocational assessment contribute to the development of a career/vocational plan for learning disabled high school students by identifying needed services, or by determining which training programs or job

placements are most appropriate?

Third, some writers propose that the process of participating in a vocational assessment has a positive effect on the student, in terms of increased awareness of interests and abilities and how this relates to jobs, increased career/vocational maturity, improved self-esteem, and/or changes in behavior or in attitudes toward school (Menz, 1978; McCray, 1982; Stodden, Ianacone & Lazar, 1979). Viewed in this way, vocational assessment is not only a predictive/prescriptive procedure, but also a treatment process. Does research support this premise?

Fourth, if research supports the value of vocational assessment for LD high school students regarding its contribution to any of the three areas described above, can any specific factors be identified which contribute to its success? That is, when studies which suggest that vocational assessment does have a positive impact on student outcomes are compared with studies which do not suggest a positive impact, can any factors be identified which are more often associated with positive results? Factors to be considered include the assessment model used, the age or grade level at which students are evaluated, the training of the vocational evaluator, etc.

In each of these four areas, a specific research question and relevant subquestions were identified. These specific questions are listed below.

**Research Question #1**

Does vocational assessment accurately predict the level of vocational programming at which a high school student with learning disabilities will achieve success?

**Research Question 1a**

Does vocational assessment accurately predict which students will be successful in regular vocational education programs? Success might be defined by factors such as completing a course with a passing grade, reenrolling for the second year of a two-year program, achieving a satisfactory teacher rating, or completing a competency exam on the course material at the end of the course.

**Research Question 1b**

Is vocational assessment accurate in predicting student success in other levels of vocational programming (eg. self-contained special/vocational education)?

**Research Question 1c**

When predictive recommendations are made regarding vocational placements in educational settings, are these recommendations followed?

**Research Question 1d**

For students nearing the end of high school, does vocational assessment accurately predict which students will be successful in postsecondary training programs, or in securing or maintaining employment?

### **Research Question #2**

Is vocational assessment effective in prescribing appropriate career/vocational components for the educational plans of students with learning disabilities?

#### **Research Question 2a**

Do vocational assessments result in recommendations for services, prevocational skill development, curriculum adaptations, or other modifications to facilitate the career/vocational development of students with learning disabilities?

#### **Research Question 2b**

Are recommendations for services, prevocational skill development, curriculum adaptations, or other modifications implemented?

#### **Research Question 2c**

If recommendations for services, prevocational skill development, curriculum adaptations, or other modifications are implemented, are they effective? Do recommendations of this kind increase the probability that students will eventually be successful in vocational training programs and/or on the job?

#### **Research Question 2d**

Do vocational assessments result in recommendations for specific, differentiated vocational education placements believed to match each student's interests and abilities?

**Research Question 2e**

Are recommendations for differential vocational education placements implemented?

**Research Question 2f**

If placement recommendations are implemented, are they effective? Are students more likely to be successful in and/or satisfied with their placements when selections are made on the basis of information provided from vocational assessment?

**Research Question #3**

Is vocational assessment effective as a treatment process, contributing to cognitive or affective changes in the student?

**Research Question 3a**

Does vocational assessment contribute to changes in the student's level of awareness of his/her interests, abilities and/or aptitudes and how these may relate to jobs?

**Research Question 3b**

Is the student's level of career/vocational maturity increased as a result of participation in vocational assessment ?

**Research Question 3c**

Does vocational assessment contribute to the development of self-esteem, self-confidence, and/or positive self-concept in learning disabled students?

**Research Question 3d**

Does vocational assessment contribute to changes in the student's behavior and/or attitudes toward school?

**Research Question #4**

Are there any specific factors that can be identified in the literature which are associated with positive impacts of vocational assessment?

**Research Question 4a**

Are positive results more often associated with either center-based assessments or curriculum-based assessments?

**Research Question 4b**

Are positive results more likely when assessments are completed at some specific age or grade level?

**Research Question 4c**

Is the length of the assessment process associated with its effectiveness?

**Research Question 4d**

Are positive results more often associated with any specific assessment techniques or methods? Factors under consideration here include the interplay between assessment instruments or techniques and the evaluators who use them. For example, are positive results more often associated with the use of a specific type of assessment instrument? Do assessment programs in which a skilled evaluator

(whether trained primarily as an educator or as an evaluator) plans an individualized assessment, and then synthesizes the information to formulate recommendations, more often produce positive results than do assessment programs in which a technician uses commercial assessment systems with computer-generated results and recommendations?

**Research Question 4e**

Is there a difference, in terms of efficacy, between assessments completed by educational personnel (eg. special education teachers or vocational education teachers) and those completed by professionals specifically trained as vocational evaluators?

**Research Question 4f**

Are there other factors that emerge as likely contributors to positive results when vocational assessment research is reviewed?

**Definition of Terms**

*Behavior Disorder (behavioral disability).* An inclusive term that typically includes the traditional categories of emotional disturbance and social maladjustment. Generally defined as excessive, chronic, and deviant behaviors ranging from withdrawal to aggression. A



behavior disorder commonly is described as a behavior that violates some cultural norm or others' expectations of what is considered "appropriate" or "normal" (Davis, 1980, pp. 20-21).

*Career.* The sequence of major positions occupied by a person throughout his preoccupational, occupational, and postoccupational life: includes work-related roles such as those of student, employee, and pensioner, together with complementary avocational, familial, and civic roles (Super, cited in Kokaska & Brolin, 1985, p. 42).

*Career Development.* The process of development related to career which proceeds through several discrete stages, including career awareness, career exploration, career preparation, and career placement/follow-up/continuing education (Brolin, 1982, p. 258).

*Career Maturity.* Similar to the concept of mental maturity. Career maturity instruments are designed to assess students' levels of . . . career information and career decision-making skills in relation to others of their age group (Hohenshil, Levinson & Heer, 1985, p.22). Career information in this context includes knowledge of a broad range of career/vocational options; knowledge of specific, preferred career/vocational areas; and awareness of how to seek additional career/vocational information as well as motivation to do so. Career decision-making skills in this context include ability to formulate a career/vocational goal and/or plan, and ability to make career/vocational decisions.

*Center-Based Vocational Assessment.* Vocational assessment "at a central location where work samples, staff, and assessment materials can be housed and used" (Peterson, 1985e, p. 33). Such a center may exist within a school district or group of districts, or may exist outside the schools, eg. as part of a private rehabilitation facility.

*Curriculum-Based Vocational Assessment.* A more informal, less intensive process of vocational assessment in which development of student prevocational skills, career awareness, and vocational skills are monitored from elementary school through adulthood. Curriculum-based vocational assessment uses existing assessment data and records, informal techniques of vocational assessment such as teacher and counselor observations, parent and student interviews, and basic vocational testing that may include vocational interest, aptitude, and awareness testing (Peterson, 1985e, p. 11).

*Disadvantaged Learners.* Individuals (other than handicapped individuals) who have economic or academic disadvantages and who require special services and assistance in order to enable them to succeed in vocational educational programs. The term includes individuals who are members of economically disadvantaged families, migrants, individuals who are dropouts from, or who are identified as potential dropouts from, secondary school (Sarkees & Scott, 1985, p. 62).

*Learning Disability*. Used synonymously with "specific learning disability."

*Learning Handicapped*. A term used by some professionals and agencies to describe a category of children who present generally mild learning and/or behavior problems that interfere with their school learning. Typically this group includes the mildly retarded, mildly emotionally disturbed/behavior disordered, and those with mild specific learning disabilities (Davis, 1980, pp. 95-96).

*Mentally Retarded*. Significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period, which adversely affects educational performance (Sarkees & Scott, 1985, p. 27). *Mildly Mentally Retarded*: The American Association on Mental Deficiency identifies four levels of mental retardation based on severity [with "mild" being the least severe]. Mildly mentally handicapped learners are sometimes referred to as educable mentally retarded students (Sarkees & Scott, p.31).

*Self-Concept*. A person's conceptual awareness of himself . . . the kind of person he recognizes and describes himself as being (Dineen, 1975, p. 28).

*Special Needs Learner*. An individual who encounters or is likely to encounter difficulty in educational or employment settings because of a disability, economic or academic disadvantage, . . .

different linguistic or cultural background, or outdated job skills (Sarkees & Scott, 1985, P. 2).

*Specific Learning Disability.* Defined in Public Law 94-142 (Education for All Handicapped Children Act of 1975) as conditions applying to "those children who have a disorder in one or more of the psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematical operations. These disorders include conditions such as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. Such terms do not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or environmental, cultural, or economic disadvantage" (Section 620, p. 794, cited in DeJnozka & Kapel, 1982).

*Transition.* That phase of career development that involves the preparation of the student for success in employment and other work roles (The Council for Exceptional Children, Division on Career Development, 1987, p. 4). The period which includes high school, the point of graduation, additional postsecondary education or adult services and the initial years of employment. An outcome-oriented process encompassing a broad array of services and experiences that lead to employment (Will, 1984).

*Vocational Assessment.* Assessment of student characteristics and skills as they relate to vocational training and employment. Vocational assessment may include an analysis of: vocational interests, vocational aptitudes and abilities; work behaviors, attitudes, and habits; specific job skills; prevocational skills; career awareness; learning potential and style; functional education skills; social status and skills; physical and intellectual abilities; and job seeking skills (Peterson, 1985e, pp. 10-11). The term vocational assessment is used here in its broadest sense, as Peterson uses it, encompassing, among other subcategories, vocational or work evaluation, center-based vocational assessment, and curriculum-based vocational assessment.

*Vocational Development.* The process of development related to preparation for work (Brolin, 1982). Considered one component of the broader concept, "career development."

*Vocational Education.* A local, state and federal endeavor focusing on the occupational preparation of individuals at less than baccalaureate level. Its primary concern is with preparation for employment. It maintains a close relationship to actual jobs in order to understand the process of developing skills that are related to obtaining and maintaining employment. Thus, it concerns itself with work, the work process, and work skills (Brolin, 1982, p. 8-9).

*Vocational Evaluation or Work Evaluation.* A comprehensive process that systematically uses work, real or simulated, as the

focal point for assessment and vocational exploration, the purpose of which is to assist individuals in vocational development. . . . The uniqueness of vocational evaluation lies in its use of work related activities and situations to assess human potential as it relates to the world of work (The Vocational Evaluation and Work Adjustment Association, 1975, pp. 51, 86). In this study, vocational (or work) evaluation is considered a subset of vocational assessment.

*Vocational Evaluator.* A person with specific training in vocational evaluation who should be responsible for implementing and/or coordinating the evaluation process (National Association of Vocational Education Special Needs Personnel, cited in McCray, 1982, p. 17).

*Vocational Training.* (1) Synonymous with vocational education; (2) sometimes used to designate short vocational courses dealing with skills only (Good, 1973, p. 620).

## CHAPTER II

### METHODOLOGY

The purpose of this study is to determine if current research supports the use of vocational assessment as an effective service for learning disabled high school students in the United States.

Synthesizing the available findings regarding the effectiveness of vocational assessment for each of its stated purposes provides a basis for understanding which aspects of vocational assessment are supported with research, and which areas need further investigation.

In the study, a number of questions were identified regarding vocational assessment services for this population. Relevant literature was then reviewed to determine if these questions could be answered from the research currently available.

To identify appropriate literature for review, computerized literature data bases were searched, including Educational Resources Information Center (ERIC), Psychological Abstracts (PsycLIT), the National Rehabilitation Information Center's data base, REHABDATA, and Dissertation Abstracts International's data base of abstracts of both theses and dissertations. The most recent annotated bibliography from the Materials Development Center, University of Wisconsin-Stout was also reviewed for relevant research (Fry, 1986). Citations from relevant studies were tracked as well, as a means of

identifying additional potentially relevant studies.

Several of the references identified were unavailable for review, and are not included in this study. Some of these were doctoral dissertations which could not be obtained through interlibrary loan because of the limitations imposed by requirements for reciprocity. Because no doctoral dissertations are produced at California State University at San Jose, no reciprocity was possible. When appropriate, the abstracts of these dissertations were cited in this report, so that relevant information, however brief, could be included.

Some of the references tracked from other documents were not available for other reasons. Several of the research papers presented at conferences that were cited in reference lists could not be located by the university's interlibrary loan office, and were therefore presumed to be unpublished and unavailable for review. Occasionally a reference cited in another work was either omitted from or inaccurately entered on the reference list, and could not be located. The vast majority of references identified were obtained and reviewed.

The review of research was limited to studies within the United States that were published from 1970 through 1989. Documents that were primarily opinion papers, conceptual models, or procedural manuals were eliminated. Many program descriptions



specifically pertaining to vocational assessment were identified in the literature. Only those program descriptions published between 1983 and 1989 were reviewed, and only those which provided outcome data were included in the study.

Also excluded from the review were instrumentation studies - studies which focused specifically upon one assessment instrument or system, usually for the purpose of measuring validity or reliability, or establishing normative data. A distinction was made between studies of a single instrument, which were excluded from the review, and studies of the process of vocational assessment, using a combination of techniques, which were included in the review.

The specific population under consideration was high school students with learning disabilities. Because these students are often grouped with other students with similar characteristics in the education literature, it was necessary to adopt a broader perspective regarding population in determining which studies to include. All studies of high school students with learning disabilities were included, both those which dealt specifically with this population, and those which dealt with a broader category of students with mild handicaps or other special needs. This included those students sometimes labeled "learning handicapped" or "mildly handicapped," labels which encompass mild mental retardation and behavioral disorders as well as specific learning disabilities. In addition,

studies were included which grouped mildly handicapped students with disadvantaged students. These two groups of students tend to share many vocationally-significant characteristics, including low academic achievement, social/emotional/behavioral problems, and inappropriate or undeveloped long range goals (Sarkees & Scott, 1985). For this reason, they are often considered together both in educational planning and in the education literature.

In summary, studies of students with learning disabilities were included in this review, regardless of whether these students were considered in isolation or as part of a broader group of mildly handicapped and/or disadvantaged students. Studies which dealt exclusively with students with other mild handicaps, or exclusively with disadvantaged students, were not included in this review.

The focus of the study was vocational assessment with high school students. However, the scope was also broadened to include studies of vocational assessment of any youth with similar handicaps of high school or community college age (arbitrarily established as ages 14 to 25 years).

The paragraphs above describe the parameters of the literature that was reviewed specifically to answer the research questions. Additional references that did not meet these criteria were also reviewed, to provide background information regarding each of the research questions. This broader range of references was not included in summary of research on each of the questions addressed.

However, it was helpful in understanding the issues and establishing the background in each of the areas addressed. These "background" references represented a sampling from the rehabilitation literature with other populations regarding each of the areas addressed, as well as a sampling of authoritative opinion papers and exemplary program descriptions from the education literature.

Following the review of the literature, the information gathered was synthesized and restructured to address the research questions identified. In the next chapter, each question is introduced with a background discussion, followed by a discussion of the research specifically pertaining to that research question.

## **CHAPTER III**

### **RESULTS AND DISCUSSION**

#### **Results**

The purpose of the study was to determine the extent to which research has established that vocational assessment is an effective service for students with learning disabilities. Four areas related to vocational assessment's effectiveness were addressed: its use for prediction, for prescription, and for treatment; and specific factors which may be associated with positive results. In each area, a research question and several subquestions were identified.

Each of these four areas is discussed in a separate section in this chapter. In each section, a background discussion introduces the topic. Each background discussion includes a sampling of related research with other populations (most frequently, with general rehabilitation populations), as well as a summary of relevant professional opinions from both the rehabilitation and the education literature. In each section, the background discussion is followed by a summary of the research specifically with students with learning disabilities which pertains to the questions in that section.

### **Section I: Prediction**

This section addresses the use of vocational assessment for predicting vocational outcomes. For purposes of this study, a distinction is made between "predictive recommendations" and "prescriptive recommendations." Predictive recommendations address the question of at what level of vocational programming could the individual currently be expected to be successful (eg. immediate competitive employment vs. vocational training vs. supported employment). This is contrasted with prescriptive recommendations, which address the question of what components should be included in the individual's career/vocational plan. When a particular vocational placement is part of this prescription, this constitutes a prescriptive placement recommendation. Prescriptive placement recommendations address the question of what kind of vocational placement is appropriate for this individual's combination of interests, abilities, etc. (eg. training in clerical work vs. training in construction). Predictive recommendations for placement might be considered selections from a vertical array of options, from least restrictive to most restrictive; prescriptive recommendations for placement might be considered selections from a horizontal array of options available at a single level.

To provide a background for discussing prediction, the use of vocational assessment for predictive purposes in rehabilitation

settings is discussed. This includes a sampling of opinions as well as research findings in the literature regarding the effectiveness of vocational assessment in predicting occupational outcomes for general rehabilitation clients. Studies pertaining specifically to students with learning disabilities are not included in the background section.

The focus of prediction in educational settings differs from its focus in rehabilitation settings. A discussion of this modification in focus for educational settings is also included in the background.

Following the background discussion, research is reviewed regarding the use of vocational assessment for predictive purposes specifically with learning disabled students.

### **Background**

Vocational assessment had its beginnings in the field of rehabilitation, where one of its most common uses has been to make predictions regarding the client's vocational potential. These predictions may become part of the process of determining eligibility for rehabilitation services. They may also be used in determining the appropriate level of placement. As McCray and Blakemore (1985) state, "Much of the data derived from vocational evaluation services is often used to make decisions about a severely disabled individual's feasibility for vocational rehabilitation services within the State-

Federal vocational rehabilitation system" (p.1).

The rehabilitation literature reflects this focus, with many journal articles and research reports devoted to discussion of and/or research regarding prediction. Pruitt (1986), for example, apparently sees the predictive use of vocational evaluation as the heart of the vocational evaluation profession: "The use of work (real or simulated) *to evaluate the potential* [italics added] for work performance and work adjustment is the distinguishing characteristic of the vocational evaluation profession" (p. 2). Overs (1970) notes that most of the research in the field is related to seeking "scientific support for the use of predictive devices" (p.19). In his literature review, he finds support for the effectiveness of vocational evaluation for prediction.

Additional research since Overs' review has generally added to this support. Two components have been addressed. First, are predictions from vocational assessments accurate? Second, are recommendations which are based upon these predictions implemented?

Regarding the first component, studies by Distefano and Pryer (1970), Handelsman and Wurtz (1970), and Wilkins (1983) examined vocational assessment reports for (respectively) performance ratings, favorable/unfavorable prognoses regarding employment potential, and scores on worker trait factors. All three studies found statistically significant relationships between these assessment

results and later occupational outcomes.

Williams (1975) compared outcomes of clients for whom predictive recommendations were followed with those for whom the recommendations were not followed. These recommendations were divided into three categories, reflecting three different prognostic levels, i.e. work adjustment (clients with the poorest prognoses), training placement, or immediate job placement (clients for whom immediate occupational success was predicted). Within the definitions in the current study, these would be considered predictive, rather than prescriptive, recommendations. Williams found a statistically significant difference, in terms of the number of successful outcomes, between clients for whom the recommendations were followed and clients for whom the recommendations were not followed. This suggests that the recommendations were based upon accurate predictions.

Finally, a follow-up study of rehabilitation clients completed by Cook (1978) indicated that vocational evaluation tended to predict failure accurately, but did not tend to predict success well.

A second component of the predictive use of vocational assessment that has been addressed in the rehabilitation literature is the extent to which predictive recommendations are followed. Hallenbeck and Campbell (1975) defined five levels of predictive recommendations (competitive/selective employment, training,



sheltered shop, diversional shop, unemployable). Within the definitions in the current study, these would be considered predictive, rather than prescriptive, recommendations. The authors then applied the same system of categorization to vocational placements, and found that 70.5% of rehabilitation clients in their study were placed according to the predictive recommendations from the vocational evaluation.

Similarly, Williams (1975), in the study described above, found that predictive recommendations for any of the three levels of vocational placement were followed by 68% of rehabilitation counselors. Williams also explored the opinions of the rehabilitation counselors regarding the evaluation results. Interestingly, although only 68% of the counselors followed the recommendations, 82% of the counselors reported that the recommendations were helpful. They noted that the recommendations were not always followed because of factors such as availability of programs or "client variables" (eg. client disagreed with the recommendation).

These studies regarding the predictive use of vocational assessment with rehabilitation clients suggest there may be some difficulties regarding the implementation of recommendations, but that the predictions themselves generally tend to be accurate.

The use of prediction in educational settings has been a topic of

considerable discussion in the education literature. As noted above, vocational assessment in rehabilitation settings has been used to predict vocational potential and, at times, to screen out some individuals as ineligible for rehabilitation services. In education settings, this is not viewed as an appropriate use of vocational assessment, as demonstrated in Clark's (1981) statement regarding the use of vocational assessment for special needs students:

"Professional acknowledgement should be made that assessment for long term prediction ... is nonproductive, expensive, and possibly discriminatory" (p. 29). Krantz (1970) also explains that, in contrast to the "screening out" process required at times in rehabilitation settings, the mandate in education settings is to provide instruction, services and programs to fit the clientele, not the other way around. Similarly, Hohenshil, Levinson and Heer (1985) maintain that rather than ruling out vocational alternatives for students, vocational assessment should be used for *generating* alternatives and then selecting those which are most appropriate for the student in question.

Using vocational assessment to predict longterm vocational potential and to screen out potential "clients" is not only inappropriate in education settings, according to some writers, but also impossible. Schneck (1981) points out that a student must be placed in a learning environment before it is possible to determine accurately his/her potential in a work environment. In addition to the

developmental/educational concerns to which Schneck alludes, Cobb and Larkin (1985) note that the current state of the art in instrumentation is simply not adequate for making accurate longterm predictions about adolescents with special needs. What Cobb and Larkin do seem to advocate in this article, however, is using vocational assessment for a more limited and immediate form of prediction. Vital questions for vocational assessment to address, in their view, include "Is vocational education an appropriate curriculum option for this particular student?" (p. 5), or "To what extent is the individual ready for vocational education?" (p. 6) In other words, it may not be appropriate to use vocational assessment to predict longterm vocational potential, but it is appropriate, according to Cobb and Larkin, to use it to predict immediate potential for success at a given level of placement (i.e. regular vocational education).

This view is also supported by Peterson (1988), who draws a distinction between vocational assessment with a focus on screening in/out and vocational assessment with a focus on determining program needs and options. Stodden (1980a) provides further support, as demonstrated in the following statement:

Vocational assessment is a student-centered, developmental growth process of a continual programmatic nature, rather than a strict predictive procedure providing isolated ability data. There is a need to provide more information which is demonstratively useful for treatment and training purposes, taking into account changing needs and capabilities, as well as providing general potential indicators" (p.8).

Prediction in educational settings, then, has a more immediate focus. Rather than being used to make longterm predictions, it is more appropriately used for making immediate predictions about a given student's potential for success at a specified level of programming. It follows that a predictive recommendation in an educational setting would be one which identifies a specific level of vocational programming, such as regular versus special vocational education.

When placement recommendations in an educational setting are considered, it may be difficult to draw a distinction between predictive and prescriptive recommendations. As was noted previously, for purposes of this study, predictive recommendations for placement might be considered selections from a vertical array of options, from least restrictive to most restrictive; prescriptive recommendations for placement might be considered selections from a horizontal array of options available at a single level. Prescriptive recommendations may also "prescribe" other elements of an educational program, such as developing specific vocational behaviors or providing specific curriculum modifications. Clearly, predictive and prescriptive recommendations are related, and at times closely intertwined. For purposes of this study, prediction in educational settings is defined in a very narrow way. Predictive

recommendations are only those which identify the level of vocational programming at which a student could currently be expected to succeed. Given the way the distinction is drawn between predictive and prescriptive recommendations for this study, most recommendations in educational settings are considered prescriptive.

Some of the education research reviewed refers to recommendations made as a result of vocational assessment, without providing enough information to determine the nature of the recommendations. Whenever the nature of the recommendations was unclear, they were assumed to be prescriptive, and the study in question was included in the section addressing prescription. The few studies remaining in the discussion of research regarding prediction in educational settings specifically address predicting "readiness" for vocational placements, or predicting level of programming at which the student could achieve success.

### **Review of Research with Students with Learning Disabilities**

Four studies were identified which address the use of vocational assessment for prediction with handicapped students. Two of the four studies were completed with students with learning disabilities (either exclusively or as the major portion of the population). The remaining two studies were completed with students whose

handicaps were unspecified. Because the major issue in each of these studies was to determine if regular vocational education was an appropriate placement, it is assumed that the populations were comprised primarily of students with mild handicaps, including at least some students with learning disabilities.

*Research Question #1: Does vocational assessment accurately predict the level of vocational programming at which a high school student with learning disabilities will achieve success?*

**Research question 1a.** Does vocational assessment accurately predict which students will be successful in regular vocational education programs? Success might be defined by factors such as completing a course with a passing grade, reenrolling for the second year of a two-year program, achieving a satisfactory teacher rating, or completing a competency exam on the course material at the end of the course.

Two studies were identified which address this question directly. Ryan (1981) completed a study in which the purpose was to determine whether recommendations from a vocational assessment were accurate in predicting student success in a regular vocational education program. Ryan's population for this study included all students who had participated in a vocational assessment through a school-based evaluation center during one year and who were enrolled

in mainstreamed vocational education placements the following year. The students' specific disabilities were not described, but the disabilities are assumed to be mild because all students in the study were placed in mainstreamed vocational education, and because the author notes that students for whom vocational education was not considered a good possibility generally were not referred to this evaluation center. Given that these were apparently students with mild handicaps, it was assumed that at least some were learning disabled students, and that the study therefore met the criteria for inclusion in the current review.

Ryan (1981) divided his population into two groups: those for whom mainstreamed vocational education was recommended, and those "who did not receive a favorable recommendation for mainstreaming, but who were placed into vocational education programs over the evaluators' recommendations" (p. 5). Ryan then compared these two groups regarding their success in the vocational programs, as indicated on a questionnaire completed by the vocational teachers. Success was defined by the following criteria: retention in the program as of the date of the study, passing grades in the program for the first half of the school year, acceptable attendance, acceptable progress toward employment or skill development, and favorable worker traits as indicated on a Likert scale.

Ryan (1981) found no statistically significant differences (at

the  $p < .05$  level) between the two groups on any of the indicators established as criteria for success. There was a trend toward more positive results on each of the criteria in the "recommended for mainstreaming" group, but this was not statistically significant. Ryan comments that "social promotions" (passing grades or promotions not justified by the students' skills) may have been a factor, and that perhaps more longterm differences between the two groups might reach statistical significance.

This study was not supportive of the use of vocational assessment for predictive purposes for this group of students. The trend toward better performance in the "recommended for mainstreamed placement" group is an interesting finding, juxtaposed as it is with the additional finding that the majority of the handicapped students from *both* groups were performing adequately in mainstreamed vocational education placements. Perhaps this vocational assessment was able to distinguish among students of differing ability levels, but was unable to relate this information accurately to abilities needed for adequate performance in a mainstreamed vocational placement. This is a distinction also drawn by Peterson (1988), who is critical of vocational assessment practices which focus on establishing students' relative standing in the skills/abilities measured and then screening out the lowest scorers, rather than determining which skills are needed in training



programs and providing services to develop these skills if necessary.

A second report regarding prediction of success in regular vocational education programs was completed by Scott and Prezioso (1986). The authors describe a vocational assessment program for special needs students which may lead to recommendations for mainstreaming at a technical center, or, for students for whom mainstreaming success is not yet predicted, may lead to recommendations for work adjustment training or remedial skills training to develop prerequisite skills and behaviors for eventual vocational training. Seventy-one students who had participated in this assessment process and subsequently enrolled in mainstream vocational programs were included in the study. The population included both handicapped and disadvantaged students; the nature of the handicaps was not specified.

As in Ryan's 1981 study, described above, the students in this study were divided into two groups. One group was comprised of 56 students for whom technical center placement was recommended on the basis of vocational assessment, and who were placed in accordance with this recommendation. A second group was comprised of 15 students for whom the vocational assessment did not predict success in a technical center placement. Students in this group were placed directly into technical center programs, despite the assessment center recommendations for prior work adjustment training or remedial services, because the recommended services

were not available.

Both groups were followed-up at the end of the first semester of vocational training. In the first group, comprised of those students who had been placed according to the vocational assessment predictions, 85% were found to be passing with a grade of "C" or better. The 15% who were receiving grades below "C" had been identified by the vocational teachers as having the ability to succeed in the classes, but were not succeeding because of chronic absentee problems.

In contrast, students in the second group, those who were placed in vocational programs despite predictions that they would not yet be successful in them, were not successful. At the end of the first semester, 100% of these students had failed or dropped out of the program. The report did not include a statistical analysis of these findings. However, the 85% accuracy rate in predicting success and the 100% accuracy rate in predicting failure do lend support to the effectiveness of vocational assessment in making this kind of prediction. These findings contrast sharply with the findings in Ryan's (1981) study, discussed above.

Neubert (1985/86b) does not directly address the issue of predicting success in regular vocational education, but she does report some findings from her interviews with school personnel regarding the uses of vocational assessment that have some

relationship to this research question. The population she studied included a majority of learning disabled students. Interviews with special education teachers at one site indicated that the teachers viewed vocational assessment as useful for determining which of their students were appropriate for mainstream vocational education placements. Interviews with vocational education teachers indicated that, despite some initial scepticism, the vocational evaluators had established considerable credibility with the vocational educators for identifying special needs students who would be able to succeed in their programs. Neubert also reports that when students were placed in two year (or longer) mainstream vocational education programs, 82% reenrolled for the second year. This suggests that their first year placements, which were usually made in accordance with vocational assessment recommendations, were successful. These findings from Neubert's study tend to support (albeit tenuously) the use of vocational assessment for predicting student success in regular vocational education programs.

An additional study which was tangentially related to this research question was completed by Brosnahan (1988). Brosnahan followed-up 32 learning handicapped students who had participated in vocational assessment, documenting teacher or parent reports of the students' experiences in vocational training programs and/or job placements since completing the assessment. Ages of the students at

the time of the follow-up study ranged from 16 to 29 years. Ages at the time of the evaluation were not stated, but it appears that most, but not all, of the individuals would fall within the 14 to 25 year age range established as a criterion for the current study.

Brosnahan's (1988) study did not specifically address the issue of whether vocational assessment accurately predicts readiness for mainstream vocational training or job placement. She examined the relationship between specific test scores and subsequent performance ratings in similar functions, either in training or on the job, as well as subsequent satisfaction with training/job placements. This could be considered one component of the research question currently being addressed, in that it examines vocational assessment's accuracy in predicting performance in certain traits or abilities. If it could be established that these particular traits or abilities were the critical ones for determining success or failure in the training program in question, or on the job, then being able to predict these functions would help predict success in the placement. Three of Brosnahan's six research questions are considered related to prediction as it is defined in the current study; the others are discussed in the section regarding prescription.

Brosnahan's (1988) findings regarding these correlations generally do not provide strong support for the predictive accuracy of vocational assessment in the specific factors considered. She

examined correlations between test scores and subsequent performance ratings in aptitudes, worker function levels, and worker temperaments. Regarding "aptitudes," Brosnahan referred exclusively to two performance areas: ability to complete a task, and ability to attend to a task. A positive correlation was found between scores on these factors and subsequent performance ratings, but this did not reach statistical significance. In 69% of the students, test scores and subsequent performance ratings matched or nearly matched.

Regarding worker functions, the relationship between test results and subsequent performance ratings of levels of function regarding data, people, or things again did not reach statistical significance. Brosnahan reports matches, or near matches, between test results and subsequent performance ratings for 58% of the students regarding level of functioning with data, for 44% of the students regarding level of functioning with people, and for 27% of the students regarding level of functioning with things.

Finally, regarding worker temperaments, three specific areas were examined: ability to work with others, ability to make decisions, and ability to perform a variety of duties. Again, statistically significant correlations were not found. Matches, or near matches, are reported for 76% of the students regarding ability to work with others, for 70% of the students regarding ability to make decisions, and for 69% of the students regarding ability to perform a variety of duties.

In summary, the studies reviewed showed some promise, but did not establish strong support for the use of vocational assessment for predictive purposes. There were conflicting findings regarding its usefulness in determining which students could be successfully mainstreamed in vocational education programs, with one study suggesting that it is not useful in this regard, and two studies providing support (one quantitative, one descriptive) for its usefulness. Regarding accuracy in predicting performance in specific abilities and temperaments, some predictions were more accurate than others, but none reached statistical significance.

**Research question 1b.** Is vocational assessment accurate in predicting student success in other levels of vocational programming?

No studies were identified which addressed this question directly. Neubert (1985/1986b) documented that recommendations for other levels of placement were made for some students for whom success was apparently not predicted in mainstreamed vocational placements. At two sites, these were recommendations for self-contained special vocational education programs; at the third site, these were recommendations for work-study placement. Although this documents that this type of recommendation was made by vocational evaluators, Neubert's study was not related to measuring the outcome of this kind of recommendation, and no data pertaining to

accuracy are reported.

**Research question 1c.** When predictive recommendations are made regarding vocational placements in educational settings, are these recommendations followed?

Although none of the studies reviewed was directed toward answering this question, some data were available from two of the studies discussed above. First, Ryan's (1981) study of 37 students who had participated in vocational assessment prior to placement in vocational education indicates that 23 of these students - 62% - had been placed in mainstream vocational education classes despite recommendations that this placement not be made, while only 14 students - 38% - were placed in vocational education on recommendation from vocational assessment. The 37 students in the study included nearly all the students who were evaluated during the specified year and who were placed in regular vocational education programs the following year. There were eight additional students who met these criteria but who are not included in the study because their vocational instructors failed to complete the questionnaire. Also unknown is the number of students who participated in vocational assessment and did not subsequently enroll in regular vocational education programs, and whether this group included both students for whom vocational education was recommended and those for whom it was not recommended. Even given the limitations of the

information provided, however, it is striking that such a large percentage of the students were placed in a setting which was not recommended.

A second document which provides some data related to this question is the report by Scott and Prezioso (1986). As in Ryan's study (1981), the group of 71 students in Scott and Prezioso's study was comprised of students who had participated in vocational assessment and had subsequently enrolled in regular vocational education programs, some in accordance with the recommendations from the vocational assessment, and some in spite of the recommendations. The proportion of students for whom the recommendations were followed was greater in Scott and Prezioso's study, however, with 56 students (79%) placed as recommended and 15 students (21%) placed despite recommendations to the contrary. In Scott and Prezioso's report, it was noted that the "not placed according to recommendations" group existed because the services that *were* recommended for this group were not available in the local school districts. Again, since this is not the issue being addressed in this report, no information is provided regarding whether there were additional students who participated in vocational assessment but did not subsequently enroll in regular vocational education. If all students who participated in vocational assessment were subsequently enrolled in regular vocational education, then the percentages reported above are not useful, as they would in this case



reflect characteristics of the population of students, rather than placement practices of the school districts.

The two remaining studies reviewed in this prediction section (Neubert, 1985/1986b; Brosnahan, 1988) do not provide information regarding implementation of predictive recommendations as they are defined in the current study. Implementation of the "predictive" recommendations in Neubert's study is discussed in the prescription section in this report, as her definitions of prescription and prediction were different from those in the current study. Brosnahan's study does not address implementation of recommendations.

In summary, very little information was identified regarding the extent to which predictive recommendations, as they are defined in this study, are implemented for learning disabled students. The two studies which provided information on this question had markedly different results, ranging from 38% to 79% of the students in the studies being placed according to the recommendations. Perhaps there is a relationship between the generally accurate predictive recommendations and the trend to follow them found in one study, and, on the other hand, between the less accurate predictions and trend not to follow them found in the other study.

**Research question 1d.** For students nearing the end of high school, does vocational assessment accurately predict which students

will be successful in postsecondary training programs, or in securing or maintaining employment?

No studies were identified which addressed this issue. Although vocational assessment services are sometimes provided for students nearing graduation, to aid in postsecondary planning, the education literature clearly focuses upon the use of vocational assessment for younger students, to aid in planning their educational programs while in high school.

### **Summary. Prediction**

This review has indicated that the use of vocational assessment for prediction has been adapted for use in educational settings, so that instead of being used to screen out some participants, it is used to predict the level of vocational programming at which the student *currently* could be expected to be successful. The literature indicates that it may be possible to make such predictions accurately on the basis of vocational assessment, but research at this time is neither extensive nor consistent.

### **Section 2: Prescription**

In this section, the use of vocational assessment for prescriptive purposes is discussed. Vocational assessment may result in a "prescription" for services or modifications or other

interventions which are needed to facilitate career/vocational development or to remove or circumvent barriers to the individual's training or employment. Services might include prevocational skill development or vocational support services; modifications might include adaptations of curriculum or job tasks to accommodate individual needs. Prescriptions may also be for specific jobs or training placements which are appropriate "matches" for the individual's interests and abilities. Recommendations of this kind are distinguished from predictive recommendations, which address the question of at what level of vocational programming could the student currently be expected to be successful.

This section begins with a background discussion of the use of vocational assessment for prescriptive purposes with general rehabilitation populations, and the application of these practices to educational settings. Following the background discussion, research is reviewed which addresses the research questions regarding the use of vocational assessment for prescription specifically with learning disabled students.

### **Background**

As was noted in the previous section, the use of vocational assessment for predictive purposes has been the focus of a large body of rehabilitation literature. Prescription has received much less attention, but is clearly viewed as one of the purposes of vocational assessment. This is implied in the following statement from the

Vocational Evaluation and Work Adjustment Association (1975): "The third specific objective [of vocational evaluation] is to identify those services needed to overcome the functional disabilities that are barriers to successful performance of the optimal functional outcomes" (p. 27).

Menz (1978) draws a distinction between vocational evaluation for determining rehabilitation potential (prediction) and vocational evaluation for developing the Individual Written Rehabilitation Plan, which includes identifying needed services and supports (prescription). Cobb and Larkin (1985) also describe the use of vocational assessment for prescriptive purposes in the rehabilitation model: "The assessment attempts to diagnose individual vocational interests [and] aptitudes and results in a prescription of how these client characteristics can be matched with suitable workplace requirements" ( p. 4).

As these references demonstrate, vocational assessment has been viewed in the rehabilitation literature as useful for prescriptive purposes, including both prescribing a specific job placement that matches the individual's interests and abilities, and prescribing necessary services or supports to facilitate the client's vocational development and/or successful placement.

Although professionals in the rehabilitation field seem to have reached a consensus that prescription is an appropriate use of

vocational assessment, this does not seem to have been a topic that has inspired extensive research. In sampling the rehabilitation literature, only one report was identified which addressed this topic. Krantz (1970) cites a survey of 35 programs for disadvantaged youth completed by Gordon in 1969. One program in this survey reports an 87% success rate for clients completing skill training when training placements were made on the basis of matching interests and abilities as measured on vocational assessment.

Berven (1983) reviewed 218 documents related to vocational assessment. He found that the documents could be categorized into six broad areas, one being "the value or effects of vocational assessment" (p.1). Berven's summary of the 25 documents in this category refers only to studies measuring aspects of prediction, or aspects of client change as a result of the process of assessment, suggesting that there were no studies identified in this extensive review that addressed the "value or effects" of vocational assessment for prescriptive purposes. There seems to be little controversy in the rehabilitation literature regarding prescription; perhaps closer examination of its effectiveness has not seemed necessary.

On the other hand, the use of vocational assessment for prescriptive purposes has been discussed extensively in the education literature. While the rehabilitation literature seems to see prediction as a primary purpose of vocational assessment, with

prescription perhaps a secondary purpose, in the education literature it is the prescriptive use of vocational assessment that is seen as primary, with prediction taking a back seat. Clark (1981), for example, proposes that prescription, rather than prediction, should be the focus of vocational assessment services in school settings. Similarly, Cobb and Larkin (1985) contrast what they view as an inappropriate use of vocational assessment for prediction with its more appropriate use for prescription:

Linking assessment procedures directly to instruction is inherently more opportunity-expanding, and, we believe, may lead in general to less restrictive placements in vocational education. Most assessment models for use with mildly handicapped students, however, are bereft of systematic components that assess the match between a student's skills and deficits on the one hand and classroom curriculum, ecology, instructional delivery, and availability of supportive services on the other. What is clearly needed in our conceptualization of vocational assessment at the school level is the addition of a systematic process that includes this component as well. (p. 4)

This statement addresses prescriptive recommendations for services and instructional needs; later in the same article, Cobb and Larkin also discuss the importance of prescriptive recommendations for specific vocational placements. Similarly, Schneck (1981) supports the prescriptive use of vocational assessment in school settings for making recommendations for both placement and services/adaptations.

Not only is it more appropriate for school assessments to stress

prescription, but also schools are able to do so more effectively than are rehabilitation centers, according to Nadolsky (1981):

Vocational evaluation programs in the public schools maintain a distinct advantage over those offered by other community [rehabilitation] agencies. Public school programs have a captive audience . . . They also have the capability for direct follow-through or of assuring that many of the vocational evaluation recommendations are fulfilled while the student is still in school. (p. 8)

Given this strong sentiment that vocational assessment results should be used directly for educational planning, it is not surprising to find frequent discussions in the literature regarding the use of assessment results in developing individual education plans (IEPs). Meehan and Hodel (1986), for example, stress the importance of using vocational assessment results in educational planning, and propose a system to promote the meaningful use of this information, to avoid, as they say, simply increasing the number of vocational goals in the IEP. Cobb and Larkin (1985) provide another example of this kind of reference:

A common theme underlying all models of vocational assessment is that results from that process should be used in developing the IEP (L. A. Phelps & McCarty, 1984), although local policy requiring the use of vocational assessment results in IEP processes is much less frequent. (p. 2)

Many of the professional opinions on this topic expressed in the literature pertain to problems noted in using vocational assessment

information in educational planning, as well as proposed solutions to these problems. Lack of local administrative policy requiring its use in IEP development, as Cobb and Larkin (1985) allude to in the quotation above, is one problem that has been noted. Neubert and Leconte (1990) note that educational settings lack not only policies, but also strategies for using vocational information in educational planning. Anderlini and Zittel (1983), in their collection of model program descriptions, find that frequently educational personnel have limited knowledge of the purposes and methods of the vocational assessment process, of the kinds of questions it could answer for them, and of how to use the information it produces in educational planning. Elrod, Sorgenfrei, and Gibson (1989) address this issue in teacher preparation as well:

Just as we do not expect special educators to devise individualized reading, mathematics or spelling programs without prior evaluation, so should we not encourage people to individualize career or vocational education programs without previous assessment. Yet, while preservice special education teacher-training programs emphasize skill development in academic and social curricula, few programs promote the use of career or vocational components in the education of handicapped students. (p. 107)

In addition, some writers note that evaluators often are unaware of the services and programs available in the schools, and tend to make recommendations for programs that are unavailable, or



to make recommendations that are so general that they are not useful. Ashley, Dubose, Poplin, and Sinkewicz (1986) note some of these problems in translating the rehabilitation model to educational settings, and propose some solutions as well. The education literature on the subject of the prescriptive use of vocational assessment contains considerable optimism and enthusiasm about the benefits of this service for special needs students, interwoven with substantial concerns about its practical application. These issues are addressed in the review of research which follows.

### **Review of Research with Students with Learning Disabilities**

A variety of studies were identified which address the use of vocational assessment for prescriptive purposes, including both for determining needed services, prevocational skills, curriculum adaptations, or other modifications or interventions, and for determining appropriate training placements. The ability of the educational system to make use of this information, as well as the effectiveness of the recommendations themselves, have been addressed in the research.

*Research Question #2: Is vocational assessment effective in prescribing appropriate career/vocational components for the educational plans of students with learning disabilities?*

**Research question 2a.** Do vocational assessments result in recommendations for services, prevocational skill development, curriculum adaptations, or other modifications to facilitate the career/vocational development of students with learning disabilities?

Five documents were identified which addressed this issue. Neubert (1985/1986b), in her study of vocational assessment services in three school sites in Maryland, examined vocational assessment reports to determine the nature of the recommendations made. She found that 44% of the recommendations contained in these reports were for prescriptive services or modifications such as prevocational skill development, counseling, or community referrals. Neubert did not indicate for what percentage of students this kind of recommendation was found. However, the average number of recommendations per student was three. If nearly half of the recommendations were for services or modifications, it is probable that most students had at least one recommendation of this kind.

Stodden, Meehan, Hodel, Bisconer, and Cabebe (1986b) studied vocational reports for special needs students with a variety of handicaps. The study was included in this review because they found few differences among the three groups of students (those with mild, moderate, or severe programming needs) regarding the uses of vocational assessment information in educational planning. Thus, it

seems likely that most of the findings would be equally applicable to students with learning disabilities and other mild handicaps as to students in the study as a whole. The number of learning disabled students was not provided. A description of the sampling procedure suggested that students with the mildest handicaps (but not all learning disabled students) may have been eliminated from the study. The authors found that, in general, the reports provided a range of vocational information but rarely in the form of specific recommendations.

Chase, Izzo, and Dunfee (1987) reviewed vocational assessment reports for 130 special needs students. The population was made up primarily of students with disabilities (learning, behavioral and developmental disabilities; small numbers of students with other disabilities) but also included a significant group (19%) of disadvantaged students. The researchers found that 84% of the assessment reports at least mentioned the special needs demonstrated by the individual students assessed, which, the authors state, increased the probability that the students would be successful in their vocational programs. Recommendations specifically for support services were identified in 58% of the reports. The authors also note that in 50% of the reports, test results were summarized without interpretation, making the information less useful for IEP development.

Two other studies provided information from surveys of education personnel regarding perceptions of what recommendations appear in vocational assessment reports. Stodden, Meehan, Hodell, Bisconer, and Cabebe (1986a) surveyed teachers regarding the usefulness of vocational assessment reports. One small component of the survey revealed that 28% of the teachers felt that the vocational assessment reports could be improved by including teaching recommendations. This suggests that these teachers typically do not find this particular form of prescriptive recommendations in the assessment reports. The report does not indicate whether the other 72% of the teachers responded differently because they do find this form of prescriptive recommendations in the reports, or because they do not view this kind of information as helpful. Presumably at least 28% of the reports did not include useful teaching recommendations.

Another survey of educational personnel regarding vocational assessment recommendations was completed by Dick and Bathurst in 1987. This study provides information about which types of assessment results and recommendations are viewed as useful in a vocational assessment report, and which types are actually available in the reports received. Of the 16 potential categories of recommendations listed on the survey form, the respondents reported that all categories should be included in assessment reports, but only two were reported to be in current reports by at least 66% of the

respondents. Recommendations for IEP goals were reported to be included in current assessment reports by 76% of the respondents, and educational needs were reported to be included in current reports by 91% of the respondents. Both of these kinds of recommendations reported to be available in assessment reports could be considered as part of the category currently under consideration - prescription for services, prevocational skill development, curriculum adaptations, or other modifications - suggesting that vocational assessments do generate this type of recommendations. On the other hand, eight of the remaining 14 categories could also be considered recommendations for services, prevocational skill development, curriculum adaptations, or other modifications, and these are areas the respondents felt were important but were generally not addressed. This study suggests that vocational assessments do generate recommendations for services, prevocational skill development, curriculum adaptations, or other modifications, but perhaps not in as many areas or as often as educational personnel would find useful.

In summary, results regarding this question were mixed. Three studies examined assessment results directly. Two of the three apparently found that recommendations for various services or modifications were present in the majority of assessment reports, while the third study found that specific recommendations were rarely made. In addition to these three direct studies, two surveys of

the perceptions of educational personnel on this issue were identified. One indicated that most educational personnel do find recommendations for services or modifications in assessment reports, although not in as many areas or as frequently as they would like. The other survey indicated that at least a large minority of educators would like vocational assessment reports to generate more teaching recommendations.

**Research question 2b.** Are recommendations for services, prevocational skill development, curriculum adaptations, or other modifications implemented?

Individual educational plans (IEPs) are the documents which drive students' educational experiences, at least from the standpoint of content. These are the planning documents to which educational personnel are held accountable. Thus the first step in implementing recommendations from vocational assessment is to translate the information into goals and objectives, and sometimes specific programs, services, or adaptations, that can be recorded on the IEP. If this information does not appear on the IEP, it is unlikely that it will be implemented. Several studies have examined IEPs to determine if they reflect assessment results.

Cobb (1983/1984) examined IEPs of 377 students with mild handicaps (learning disabilities, mild retardation, educational handicaps, behavioral disorders). He found that vocational

assessment information appeared frequently in these IEPs, suggesting that results and recommendations from vocational assessments were implemented.

Stodden et al. (1986b), in the study described above, and Stodden, Meehan, Bisconer and Hodel (1989), in another article about the same study, documented the impact of vocational assessment results on the number and content of IEP goals and objectives. In this study, the researchers examined student IEPs from before and after participation in vocational assessment, and found the number of vocationally-related goals and objectives to be essentially unchanged. This indicates that vocational assessment had no measurable impact upon the number of vocationally-related goals and objectives in the IEP.

The findings were somewhat more positive regarding vocational assessment's impact upon the content of IEP goals and objectives. Most students (65%) were found to have at least one goal or objective for which the content matched vocational assessment results. The authors found that 53.5% of the vocationally-related goals and objectives in the IEPs were related to vocational assessment results. The authors interpret this as an indication that vocational assessment has little impact upon the content of IEP goals and objectives. However, it is not surprising that *some* vocationally-related goals and objectives were based upon information acquired

from sources other than vocational assessment. Determining just what percentage is appropriate requires subjective interpretation. The piece of information from this study that would be most critical to answering the research question currently under consideration is the following: What percentage of the results or recommendations from the vocational assessments is reflected in the IEPs? Unfortunately, these data are not provided.

Stodden et al. (1986b) did find a strong relationship between vocational assessment results and IEP goals and objectives for work study programs. They documented that 74% of the goals and objectives pertaining to work study programs were related to the assessment results.

Chase et al. (1987) also examined the relationship between vocational assessment recommendations and content of IEPs for special needs students. They found that 92 % of the students' IEPs contained a provision for support services, although in only 58% of the cases was this related to recommendations from the vocational assessment. However, it is significant that, of the 58% of students for whom support services were recommended as a result of vocational assessment, 100% apparently received the recommended services.

Neubert (1985/1986b) also examined the relationship between vocational assessment results and IEP content related to services, prevocational skill development, curriculum adaptations, or other



modifications. She was able to identify IEP items for 60% of the assessment recommendations in this category. She cautions that this figure may be misleading, in that it includes recommendations for remedial academics. Given that IEP goals and objectives pertaining to developing academic skills are common for this population of students, it was not necessarily true that the academic goals and objectives found in the IEPs were the result of the vocational assessment recommendations. When recommendations for remedial academics were removed from the data, IEP items were identified for only 37% of the assessment recommendations.

Neubert (1985/1986b) also found that recommendations for prevocational skill development were often implemented by vocational support personnel concurrently with the student's participation in vocational education, rather than by special education personnel prior to placement, as had been recommended.

In addition to the research which examined the implementation of recommendations directly, three studies indirectly examined this issue through surveys of educational personnel. In one study (Stodden et al., 1986a), a majority of teachers (53%) reported that they use vocational assessment information for developing vocational goals and objectives, suggesting that assessment does have some impact upon this process. However, the authors report that this is teacher perception but not fact, as it conflicts with the information gathered

in their review of the actual documents.

Chase et al. (1987) surveyed vocational evaluators regarding their perceptions of how their recommendations in the services/prevocational skills/adaptations category were used. Although the evaluators' perception was that their recommendations were more often used for placement, the majority believed recommendations were also used for developing the IEP (58% of evaluators) and for planning vocational goals (66% of evaluators), and a large minority (46%) believed they were used for planning academic goals.

In a third study which surveyed educational personnel regarding their perceptions of vocational assessment results, Dick and Bathurst (1987) uncovered an interesting contradiction. Most respondents reported that special educators were in charge of coordinating follow-up activities following the vocational assessment, but special educators reported that they use the assessment results only 23 % of the time. These results suggest that, despite a generally positive view of the kinds of information that can be provided by vocational assessment, there may be a breakdown in implementing the results. This particular issue was not the subject of this study, and was addressed only by inference.

In addition to these results regarding the impact of assessment information upon IEPs, and the views of related personnel about the

usefulness of this information in educational planning, several studies have documented problems of various kinds in the application of assessment results to educational planning. Virtually all the documents reviewed regarding this research question described difficulties in the process of translating assessment results/recommendations into educational plans and goals (Chase et al., 1987; Dick & Bathurst, 1987; Neubert, 1985/1986b; Stodden et al., 1986a, 1986b, 1989). Neubert indicates that it is possible to generate useable recommendations. Dick and Bathurst demonstrate that educators value these recommendations. Still, something seems to go wrong in the process of translation.

The authors of these studies have suggested different roots of this problem. Some suggest that lack of teacher knowledge regarding how to ask specific referral questions and/or how to use the assessment results in developing educational plans is at least part of the problem (Chase et al., 1987; Dick & Bathurst, 1987; Stodden et al., 1986a, 1986b). In addition, the observation made in one of these studies (Stodden et al., 1986b) that the vocational goals and objectives were vague, general, and essentially the same for all students at a single school site suggests some limitations in the IEP writers' abilities in this area, since the authors report that the assessment reports provided much more varied information than was reflected in the IEPs.

A second area suggested as a potential root of this problem is

the knowledge and skill of the evaluators (Chase et al., 1987). These authors documented the evaluators' own views of their training needs, which included training in writing recommendations for special services, and knowledge of prerequisite skills for specific training placements. They also noted that in half of the assessment reports they reviewed, the evaluator had summarized test results without any effort at interpretation, making it difficult to translate the findings into a form that was useful for educators.

A third area of difficulty that was documented was a lack of local administrative directives requiring the use of assessment information in IEP development, and establishing personnel accountable for accomplishing this. Neubert (1985/1986b) documents this need in her study, and proposes that this is a major contributor to problems in implementation. A similar issue is inferred from Dick and Bathurst's (1987) findings regarding accountability for follow-up activities, and from Stodden et al. (1986a) regarding teachers' views of the usefulness of assessment information for educational planning.

Stodden et al. (1986b) also suggest that the problem lies partly in the model of vocational assessment itself and in the methods of communicating results; they suggest an integrated, curriculum-based approach as a cure for the implementation problem.

Finally, Stodden et al. (1989) suggest that some aspects of vocational assessment results simply do not readily lend themselves

to the IEP format. For example, information regarding a student's vocational interests may be very useful in planning instructional strategies and activities, but may not fit neatly into the IEP's current functioning/goal/objective format. Other findings may be more easily translatable, but procedures have not yet been established for doing so, as contrasted with the more familiar task of translating academic test results into academic goals and objectives.

In summary, all studies related to this question indicated that recommendations were implemented to some degree, but most indicated that the relationships between assessment results and educational planning were not strong. The literature was fairly consistent in viewing this as a problem in translating assessment information into educational plans, but there was a wide range of views regarding at what point in the process the difficulty lies.

**Research question 2c.** If recommendations for services, prevocational skill development, curriculum adaptations, or other modifications are implemented, are they effective? Do recommendations of this kind increase the probability that students will eventually be successful in vocational training programs and/or on the job?

Only one study was identified which addressed this question. Neubert (1985/1986b) did not attempt to measure the effects

directly, but she did systematically collect information from related personnel regarding the effectiveness of this kind of recommendation. Overall, she found that only 26% of the professionals interviewed felt that vocational assessment was helpful for developing the IEP. She found that while vocational evaluators generally saw prevocational skills and services as essential to the students' success, special education teachers were much less inclined to see them as helpful.

One of the most commonly recommended interventions was the services of the Vocational Support Service Team. This service was clearly viewed by vocational teachers as highly effective for facilitating success in regular vocational education classes for the special needs students. Neubert's findings regarding the effectiveness of this intervention included the statement that "the vocational instructors were very positive about the VSS [Vocational Support Services] and all the instructors stated that without this service, many of the special education students would not succeed in the vocational programs" (p. 126).

This issue is complicated by the difficulty of measuring the effectiveness of the recommendations in isolation. Clearly, the effectiveness of the service or intervention itself is also a factor. For example, for a recommendation for prevocational skill development to have a positive effect on the student's career/vocational development, not only must it be an appropriate recommendation, but also there must be an effective means for

developing the specific prevocational skills in question. The information collected by Neubert regarding the effectiveness of this category of recommendations, at least for support services, is promising. However, before it can be established that vocational assessment is effective in identifying which services or interventions are needed for a specific student, it may be necessary to first establish that the services or interventions themselves are effective.

**Research question 2d.** Do vocational assessments result in recommendations for specific, differentiated vocational education placements believed to match each student's interests and abilities?

Three studies were identified that provided specific information regarding this kind of recommendation. To be included in this group, it was necessary that the recommendations specify a particular kind of vocational placement that would be a good "match" for the student, as opposed to predictive recommendations that only specified a level of program (eg. regular vocational education vs. self-contained class) at which the student could be expected to succeed.

Neubert (1985/1986b), Evans (1986), and D. L. Kaplan (1985) all reported that recommendations for specific vocational education placements were made in the vocational assessment reports of the programs they studied. Neubert found that 56% of the

recommendations in these reports were for vocational placements. Within the group of students predicted to be ready for regular vocational education programs, apparently all had recommendations for specific training programs. Evans' study included only those students who had participated in a vocational assessment program during one year and had enrolled in regular vocational education the following year; of this group, 100% had recommendations for specific vocational placements in their assessment reports. Kaplan describes an assessment program in which there is a particular focus on making recommendations that take into account specific program availability at the local district; it was reported that all student reports in this program include prescriptive placement recommendations.

Most students in Neubert's and Evans' studies were learning disabled; Kaplan's study included learning disabled students but the proportion was not specified. These studies indicate that vocational assessment in school settings results in prescriptive recommendations for specific vocational education placements.

**Research question 2e.** Are recommendations for differential vocational education placements implemented?

Studies which address this question are divided into three categories: those that directly examined school placements, those that used indirect measures, such as surveys of educators' opinions, and those that looked at self-selections students made following



vocational assessment.

Several studies examined assessment reports and school documents directly to determine whether assessment recommendations for vocational education placements had been implemented. Neubert (1985/1986b) found that 74% of all the placement recommendations identified on the vocational assessment reports were implemented in the three sites she studied. When recommendations only for a specific vo-tech center program or for a specific high school vocational program were considered, it was found that 82% were implemented.

In Evans' (1986) study, only students who had participated in vocational assessment and subsequently enrolled in regular vocational education programs were included. Of these students, it was found that 76% were placed in the specific program that had been recommended; the remaining 24% were placed in other, nonrecommended mainstream vocational programs. The author later noted (L. Evans, personal communication, April 19, 1990) that reasons these students were not placed according to the recommendations may have included lack of available space in the recommended program precluding enrollment during the year of the study (later placement in the recommended program was still a possibility), or perhaps a lack of timely communication of assessment results to key personnel in placement decision-making.

A study of vocational assessment reports and corresponding

IEPs completed by Chase et al. (1987) indicated a fairly strong relationship between assessment results and vocational placements, although recommendations are not specifically mentioned. The authors found that 69% of the students in the study were placed in vocational programs that matched their assessed interests, 83% were placed in programs that matched their assessed abilities, 61% were placed in programs that matched both their interests and their abilities, and 42% were placed in programs that matched their aptitudes.

D. L. Kaplan (1985) provides follow-up data from an assessment center which indicates that although 86% of the assessment reports recommended vocational educational placements that were available to the students locally, only 50% of the recommendations were implemented. The author reports that for the other half of the evaluatees, recommendations were not implemented either because the student left the district or because responsibility for implementing the plan shifted to another person who had not been involved in the initial referral and assessment process. Unless these districts have an unusually unstable student population, these findings suggest that implementation of prescriptive placement recommendations is highly dependent upon the involvement of key educational personnel in the assessment process.

Cobb and L. A. Phelps (1983) examined IEPs for students with

learning disabilities or mild mental retardation. The focus of their study was to determine the number of students whose programs included a vocational component, and, for those whose programs did, to examine the IEP for information that might indicate what factors are considered when placement decisions are made. Of the 53 IEPs that were examined, eight had information from a vocational assessment. In this brief description of their research, there was no indication of how many of these 53 students had had vocational assessments. If only eight students had assessments, this would indicate that 100% of the assessments had an impact on the IEP, suggesting a strong impact but not enough assessments; if all 53 students had assessments, this would indicate that only 15% of the assessments had an impact on the IEP, suggesting adequate availability but lack of impact. Without this information, it is not possible to interpret the results as they apply to the research question currently under investigation.

Brosnahan (1988), in her follow-up study with learning disabled students who had participated in vocational assessment, provided information regarding subsequent training and/or job placements for these individuals. Although no information regarding specific evaluator recommendations is provided, the students' interests on several different assessment measures are recorded, and their subsequent placements are noted to match or not match these

interests. Placements matched measured interests for 46% to 66% of the students, depending on which of the three interest measures is used. This provides a measure of the impact of assessment results (interest factors in this case, rather than evaluator recommendations) on subsequent placements.

Three studies provide indirect information regarding the implementation of placement recommendations. Stodden et al. (1986a) report that 59% of special education teachers found vocational assessments most useful for determining appropriate work study placements for students, suggesting that the assessments had some impact on placement decisions. As the authors state, "It is perhaps in this final step in the vocational education process that vocational assessment information has its most direct impact" (p.26).

Chase et al. (1987) found that 80% of the vocational evaluators they surveyed report that assessment results are used for placement decisions. Hancock (1984/1985) found that 83% of directors and coordinators of special education in 127 school districts surveyed report that vocational assessment is useful in making vocational placement decisions in their districts.

Finally, two reports examined different aspects of self-selection following vocational assessment. L. Kaplan, Chillemi, Schilling and Seppanen (1986) followed a group of learning disabled students who participated in vocational assessment and counseling during their last year of high school, and subsequently enrolled in

post-secondary programs. Of those who had selected a major, 80% had selected a major similar to what was recommended on the assessment. Although this report does not directly address implementation of assessment recommendations by school personnel, it does suggest that assessment recommendations may have a significant impact upon students' own "placement decisions."

In a second report which included some self-selection, Ashley, Dubose, Poplin, and Sinkewiz (1986) found that 59% of the students who participated in vocational assessment selected specific vocational goals that were based upon their measured interests and abilities. An additional 14 % identified a general career area as a result of the assessment results. These two groups, totaling 73% of the students in the study, all enrolled in vocational programs that were appropriate for the goals they had developed. The remaining 27% of the students in the study, those who were unable to identify a specific vocational goal or a general career area as a result of vocational assessment, were placed in vocational programs selected for them on the basis of behavioral needs, which were apparently a primary concern with this group.

These studies suggest that most vocational assessment recommendations for specific vocational placements are implemented, although with greater consistency in some programs than in others. The implementation rate ranged from 46% in one study

to 82% in another, with more studies approaching the upper end of this range than the lower end. Evaluators, teachers, and administrators perceive assessment results to be useful in making placement decisions. Assessment recommendations seem to have an impact upon students' selection of their own goals and educational pursuits as well.

**Research question 2f.** If placement recommendations are implemented, are they effective? Are students more likely to be successful in and/or satisfied with their placements when selections are made on the basis of information provided from vocational assessment?

Four studies were identified that addressed some aspect of this question. First, Evans' (1986) study provides some directly applicable data. In this study, the population included all students who participated in a vocational assessment during one school year and were enrolled in regular vocational education programs the following school year. Most of the 201 students in the study were students with learning disabilities (56%). The population also included slow learners/students with educational handicaps (29%), students with mild mental retardation (13%), students with behavioral disorders (1%), and students with other disabilities (1%). The students were divided into two groups: those who were enrolled in vocational education programs that matched the recommendations from the

vocational assessment (153 students), and those who were enrolled in vocational education programs that did not match the recommendations from the vocational assessment (48 students).

Vocational education teachers completed rating forms for each of these students, rating their performance in 12 categories. Ratings for the two groups were then compared. A statistically significant difference was identified, at the .01 level, between the two groups in 11 of the 12 categories. The students placed according to the recommendations were significantly more successful on all factors except attendance. The author concludes that there is a relationship between placement in vocational education on the basis of vocational assessment recommendations, and successful performance ratings in vocational education.

In a second study, Brosnahan (1988) examines the relationship between student placement in programs/jobs that match their measured interests and student satisfaction and/or success in these placements. The study provides information that is only partially related to this research question, in that the focus was not on evaluator recommendations, and thus no information regarding recommendations is provided. However, the study does provide information regarding outcomes when students are placed according to their interests, which is a significant component in formulating evaluator recommendations.

In this study, follow-up information is provided for 32 learning

handicapped students who had previously participated in vocational assessment. Three sets of data are provided which apply to this research question. The first set of data pertains to whether students who are placed in training programs or on jobs that match their "interest factors" as measured on the MESA ( a computerized vocational screening instrument) are more pleased and successful in these placements than are students not placed according to their interest factors. No statistically significant correlation was found, although the author notes that 65% of the students were either successful and pleased in placements that matched their interest factor scores, or were unsuccessful and/or displeased in placements that did not match their interest factor scores. Another way of looking at these percentages is that 60% of the students were in placements that matched their interest factor scores. In this group, 95% were pleased with the placements and 95% were successful in them. In the remaining group of students in placements that did not match their interest factor scores, 93% were successful and 71% were pleased. This suggests that students may be somewhat more satisfied with placements that match their interest factor scores, but apparently not at a level of statistical significance.

The two remaining sets of data from Brosnahan's (1988) study which apply to this research question pertain to whether students are more likely to be pleased with placements that match their measured



interests, as measured on either the MESA interest areas (this is a different test from the MESA Interest factors, the scale used in the description above) or the Self-Directed Search (SDS). Statistically significant correlations were not found for either interest test. The author reports that, with the MESA interest areas score, 51% of the students were either pleased with a placement that matched their interest area score, or were displeased with a placement that did not match. With the SDS score, 56% of the students were either pleased with a placement that matched their interest score, or were displeased with a placement that did not match. Looking at these percentages in another way, 46% of the students were in placements that matched their MESA interest area scores. In this group, 88% were pleased with the placements. For the 54% of students who were not placed in areas matching their MESA interest area scores, 80% were pleased. With the SDS scores, 66% of the students were in placements that matched, and 80% of these students were pleased. In the group of students not placed in areas matching their SDS scores, 92% were pleased with their placements.

These findings suggest that, although students were somewhat more likely to be pleased with placements that matched their interests, as measured by either of the MESA interest tests (but not as measured by the SDS), this was not statistically significant. The findings also suggest that the majority of students were both pleased

(85%) and successful (95%) in their placements, regardless of whether the placements matched their tested interests.

Two additional studies provide indirect information regarding the effectiveness of vocational assessment prescriptive placement recommendations. Bohnenstiehl (1985) followed up special needs students who participated in vocational assessments and subsequently enrolled in regular vocational education programs. Bohnenstiehl interviewed these students' vocational education teachers regarding their perceptions, retrospectively, of what they found most helpful from the vocational assessments. The teachers reported that the two most significant contributions of vocational assessment were in making vocational education placement recommendations and developing the vocational component of the IEP. Although this information regarding the usefulness of the placement recommendations comes from an indirect measure, it is significant that the source of the information is the vocational instructors themselves, who would certainly be in a position to know if the recommendations were off the mark.

Similarly, Neubert's (1985/1986b) interviews with vocational instructors indicated that they felt that vocational assessment recommendations increased the number of appropriate placements for these students.

These studies suggest a relationship between placing students in vocational programs that are recommended for them on the basis of

a vocational assessment, and subsequent student success in the recommended programs. This finding is suggested by one direct study of this relationship, and by two indirect studies of vocational educators' views of this relationship. When student interests alone were studied in relationship to outcomes in training or job placements, significant relationships were not found. Although the research on this topic is limited at present, this is a promising beginning.

### **Summary, Prescription**

The studies regarding the prescriptive use of vocational assessment suggest that prescriptive recommendations for placements are more frequently used in educational planning than are recommendations for services or modifications. Vocational assessment may generate recommendations for services or modifications that are appropriate and helpful, but translating them into a form that is useful in educational programming has been problematic. In contrast, placement recommendations are more frequently implemented, and the few studies identified regarding their effectiveness show some promise.

### **Section 3: Treatment**

Both researchers and practitioners in the vocational assessment

field have long been interested in the value of the *process* of vocational assessment for the person who participates in it. These professionals often describe vocational assessment as not only a predictive/prescriptive technique, but also a treatment process.

This section first provides background information regarding the use of vocational assessment as a treatment process. The background includes an overview of the general rehabilitation literature on this topic, incorporating both professional opinions and related research with other populations. A sampling of research with normal adolescents is briefly described. The background also includes a discussion of opinions developed in the education literature regarding the use of vocational assessment as a treatment process in educational settings.

The background discussion is followed by a discussion of research in the use of vocational assessment as a treatment process specifically for students with learning disabilities.

### **Background**

The view that vocational assessment is effective as a treatment process clearly has a long history in the rehabilitation literature. In their literature review, Herbert and Menz (1981) reveal that the expectation that vocational assessment has therapeutic effects can be traced in the rehabilitation literature at least as far back as 1959, although research in this area has been inconclusive.

They note that "clinical observations of practitioners suggest that vocational evaluation has therapeutic merit, but the research conducted thus far has not documented these claims" (p. 105).

A sampling of reports from both researchers and practitioners was reviewed to provide an overview of how these issues have been treated in the general rehabilitation literature. Any rehabilitation literature which met the criteria for the study of vocational assessment specifically with learning disabled students is not discussed with this background information, but rather is included in the discussion of the research questions.

Four benefits of the vocational assessment process are most commonly described in the general rehabilitation literature. A brief discussion of each of these potential benefits follows. For each potential benefit, a general description of opinions in the field is followed by a sampling of the rehabilitation research addressing that specific area.

First, vocational assessment may contribute to the client's self-knowledge. In this view, the client learns about his/her vocationally-related interests, abilities, and aptitudes, and about the relationship of these factors to the world of work (Barton, 1970; Brandon, 1973; Chandler & Coker, 1984; Dunn, 1975; Hursh, 1984; Menz, 1978; Nadolsky, 1973).

In one study of the effectiveness of vocational assessment in

contributing to the client's self-knowledge, Chandler (1979) reports that vocational evaluation personnel (administrators, evaluators and aides) observe changes in clients' knowledge of their abilities and interests following vocational evaluation. This data was gathered through questionnaires completed by evaluation personnel, rather than from measuring actual client change. Other studies measuring changes in rehabilitation clients' self-knowledge were not identified.

Second, vocational assessment may facilitate development of the client's career/vocational maturity. Career/vocational maturity includes factors such as awareness of a broad range of career/vocational possibilities, knowledge of specific, preferred career/vocational areas, motivation to seek additional career/vocational information and knowledge of how to do so, ability to make career/vocational decisions, and ability to formulate a career/vocational goal and/or plan. Discussions of vocational assessment's possible contributions to one or more of these career maturity factors are common in the literature (Barton, 1970; Dunn, 1975; Hursh, 1984; Menz, 1978; Nadolsky, 1973).

Results of research in this area are mixed. Tseng (1977) reports that participants in a vocational evaluation program demonstrated improvement in their perceptions of the world of work. Sink and Gannaway (1976) found that vocational assessment resulted in an increase in evaluatee efforts to obtain vocational information, although this study was not completed with a rehabilitation

population, but rather with army recruits. Czerlinsky and Coker (1980) surveyed vocational evaluators and found that evaluators expect clients to develop improved decision-making skills as a result of participation in vocational evaluation. Actual client effects were not measured directly. Findings by Chandler (1979) and Chandler and Coker (1984) suggest that ability to identify a career/vocational goal is not significantly improved by participation in vocational assessment. Hein (1979) found that clients' career maturity improved significantly on a standardized career maturity assessment instrument following participation in vocational evaluation, while Chandler (1979) and Chandler and Coker (1984) reported no statistically significant improvement on career maturity testing which could be attributed to participation in vocational evaluation.

Third, many writers have discussed possible contributions of the vocational assessment process to development of self-esteem, self-confidence, or positive self-concept (Atlanta Employment Evaluation and Service Center, 1971; Herbert & Menz, 1981; Holbert, 1970; Menz, 1978). The studies identified in this area specifically examined self-concept. No statistically significant changes were found as a result of vocational assessment (Chandler, 1979; Chandler & Coker, 1984; Jacobs, 1971).

Finally, several writers have postulated that clients who participate in vocational assessment may demonstrate increased

motivation or improved attitudes toward school or work (Barton, 1970; Brandon, 1973; Chandler & Coker, 1984; Herbert & Menz, 1981; Menz, 1978). Research in this area includes a 1975 study by Brewer, Miller, and Ray (cited in Herbert & Menz, 1981) which indicated that clients developed a more positive attitude toward work as a result of participation in vocational evaluation. On the other hand, a study by Pierson and Crimando (1988) indicated that clients developed a more negative, but apparently more realistic, attitude toward work as a result of participation in vocational evaluation. This was interpreted as a positive outcome from the evaluation.

As this brief review suggests, issues related to the therapeutic effects of vocational assessment have been discussed in the rehabilitation literature, but research regarding these postulated therapeutic effects has been mixed, suggesting that this area is not yet well understood. Applying these ideas to the use of vocational assessment with other populations, such as students in regular or special education, requires additional caution.

Career/vocational assessment and counseling has been discussed as a means of facilitating career development in normal adolescents. Korn (1976) describes a 1968 study by Krumboltz with nonhandicapped high school students in which it was found that hands-on vocational exploration materials promoted additional student occupational exploration. Korn also describes Biggers' 1971



study of nonhandicapped boys which indicated that the most important factor in vocational decision-making was information regarding actual work done on the job. These studies suggest that activities which provide vocational knowledge, such as work samples or other hands-on experiences, may facilitate aspects of career/vocational development, including both seeking occupational knowledge and making career decisions.

Sellers (1986) describes a career/vocational assessment program for nonhandicapped students. Student reports of benefits from this career/vocational assessment included increased knowledge of jobs and their educational requirements, increased knowledge of individual preferences, and increased awareness of the importance of finishing school. These comments suggest a relationship between participation in career/vocational assessment activities and growth in career/vocational maturity.

Briscoe, Mueider, and Michael (1981) demonstrate that nonhandicapped students lack awareness of their own aptitudes, and recommend that career/vocational testing and counseling be available for all students beginning in the ninth grade to help them develop this awareness. Brennan (1976) suggests that career counseling should be provided as a means of improving career/vocational decision-making skills as well as improving decision-making skills in general. These writers support the acquiring of career/vocational information as a means of fostering career/vocational maturity in nonhandicapped

adolescents, just as it was shown above that many researchers and practitioners support this process in rehabilitation clients as a means of promoting career/vocational maturity and other therapeutic effects.

The application of these ideas to special needs students has also been discussed in the education literature. This is not surprising, given the emphasis upon developmental issues when applying vocational assessment principles to school populations. The postulated therapeutic effects can be categorized into the same four general areas that were discussed above.

The first area, again, is increased self-knowledge. Several writers note that special needs students tend to be particularly lacking in the self-knowledge necessary to make realistic and satisfying career/vocational choices (Eirod, Sorgenfrei, & Gibson, 1989; Winer, Pierce, & Wilson, 1988). Vocational assessment is described as an important contributor to students' awareness of their own interests and abilities (Bicanich & Leconte, 1985; Nadolsky, 1981; Schneck, 1981).

The second area is career/vocational maturity. This includes factors such as awareness of a broad range of career/vocational possibilities, knowledge of specific, preferred career/vocational areas, motivation to seek additional career/vocational information and knowledge of how to do so, ability to make career/vocational

decisions, and ability to formulate a career/vocational goal and/or plan. As was described above, this is an area of particular concern for adolescents in general. The career/vocational maturity needs of students with learning disabilities are believed to be even more significant (Billler, 1985; Bingham, 1980; Elrod et al, 1989).

Vocational assessment is recommended by many writers as a means of addressing these needs (Barton, 1970; Cobb & Larkin, 1985; Esser, 1985; D. L. Kaplan, 1985; Nadolsky, 1981; Neubert, 1982, 1985/1986b; Stewart, 1981).

Third, vocational assessment has been discussed as a possible contributor to developing self esteem, self-confidence and/or a positive self concept in special education students (Cobb & Larkin, 1985; Herbert & Menz, 1981; Neubert, 1985/1986b). Tindall and Gugerty (1986) demonstrate this in anecdotal form in reporting that a learning disabled student who had just completed the vocational assessment process said, "This is the first time I have been tested where it showed that I can do some things. I didn't feel dumb like I usually do" (p.12).

Fourth, it has been suggested that vocational assessment contributes to developing improved attitudes toward school and work. It may also increase the student's motivation in school (Menz, 1978; Nadolsky, 1981; Peterson, 1988). Leconte (1985), with her years of experience as a vocational evaluator, has observed that "Vocational

evaluation is a powerful tool for motivating students, helping them plan for the future and giving them a reason for staying in school" (p. 43).

Menz (1978) summarizes some of the proposed "process" benefits of vocational assessment in the two following paragraphs. The first has to do with clients gaining information from the process, the second with client change as a result of processing this new information:

Some of the benefits logically deal with the clients gaining new and unprecedented information about their own vocational strengths and weaknesses; gaining new information about occupational outlets and alternatives of which they were previously unaware; gaining new insights as to their own vocational potential for either employment or skill training; gaining new information on their own behaviors . . . (p.2).

One would expect that clients would have a different attitude about work, be better able to plan and make decisions as to what they want to do vocationally, have different concepts about themselves as vocational and social beings, be more goal-oriented, look for and pursue more vocationally relevant aspects of the activities and/or experiences in their daily lives.

(pp. 3-4)

This review has demonstrated that the process of vocational assessment is believed to be effective in promoting therapeutic change in people who participate in it. This has been noted in both the rehabilitation literature and the education literature. A discussion of research regarding the effectiveness of vocational assessment in this

regard with learning disabled students follows.

### **Review of Research with Students with Learning Disabilities**

The literature review identified eight studies which address aspects of this research question. Five of the eight studies were conducted with a population of "reluctant learners." The "reluctant learners" in these studies have been variously defined as, for example, "high school students who have learning problems caused by anything other than mental deficiency" (Kennedy, 1974, p. 28), or as high school students who demonstrate the following characteristics:

- (1) high absenteeism (to the point where it is impairing progress in the achievement of a high school education), (2) behavior problems (which cause a lack of school progress), (3) underachievement (not maintaining grades or performance concurrent with ability), (4) lack of goals, and (5) academic problems due to limited ability. (Dineen, 1975, p.30)

These studies have been included because the definitions are broad enough to include learning disabled students, as well as other students with mild handicaps and/or nonhandicapped students considered "at risk," thus meeting the criteria for inclusion in the study. In addition to the five reluctant learner studies, three studies were identified in which the handicapped student populations were described only in very general terms, but other data reported indicated that these were students with mild handicaps. No studies

were identified which examined the "process" values of vocational assessment exclusively with learning disabled students.

*Research Question #3: Is vocational assessment effective as a treatment process, contributing to cognitive or affective changes in the student?*

**Research question 3a.** Does vocational assessment contribute to changes in the student's level of awareness of his/her interests, abilities and/or aptitudes and how these may relate to jobs?

Two studies addressed this question directly. First, Kennedy (1974) studied students' perceptions of their own aptitudes before and after participation in the vocational assessment process, in a population of 20 reluctant learners from five high schools in northwestern Wisconsin. The students completed self-rating scales regarding their vocational aptitudes before and after participation in the two-week vocational assessment program. Pre-assessment and post-assessment self-ratings were compared to the evaluators' ratings of the students' aptitudes. It was hypothesized that students' ratings of their own aptitudes would be more accurate following the assessment, and would therefore more closely resemble evaluator ratings than would their pre-assessment self-ratings. In other

words, Kennedy was looking for a significant increase in the degree of agreement with evaluator ratings from pretest to posttest in each of nine aptitude areas.

Kennedy's statistical analysis indicated that the change was in a positive direction and significant at the  $p < .05$  level in four aptitude areas (i.e. Spatial Aptitude, Form Perception, Motor Coordination, and Finger Dexterity). In four other areas there was a positive change that was not considered statistically significant (i.e. General Intelligence, Verbal Aptitude, Numerical Aptitude, and Manual Dexterity). In the one remaining area, Clerical Perception, there was a negative but statistically insignificant change. This indicates that perceptions of cognitive abilities were the least susceptible to change, despite large evaluator/student discrepancies in rating these areas, and that perceptions of perceptual-motor abilities were most susceptible to change. The results suggest that vocational assessment contributes to the accuracy of students' perception of their own aptitudes, with strongest contributions in the area of perceptual-motor aptitudes.

In a second study with reluctant learners which addressed this research question, Menz (1978) found that vocational assessment had a positive impact on the students' awareness of their own abilities. Following participation in vocational assessment and subsequent return to high school, the students in the study improved in this area

to a level that was considered commensurate with that of typical students. This was measured by report from both school counselors and teachers. This report of significant positive change was supported by improved student scores on the associated scale of the Career Maturity Inventory, although the difference between pre- and post-assessment test scores was not statistically significant at the  $p < .05$  level.

One other study addressed this research question indirectly. Ryan (1981) noted in his follow-up study conducted in a school-based vocational assessment center that most students who had participated in the vocational assessment program and subsequently enrolled in vocational education programs were successful in these placements. This was true for all students, both those for whom mainstreamed vocational education was recommended on the basis of the vocational assessment, and those who were placed in mainstreamed vocational education despite recommendations that they not be placed in such programs. Ryan hypothesizes that this unexpected success may be the result of the students having benefitted from their participation in the vocational assessment. He suggests that the students were able to rule out the most inappropriate courses themselves because, in participating in the vocational assessment program, they had gained knowledge of their interests and strengths, and of the skills required in the specific vocational education courses offered. The vocational assessment



process was seen as having "set the stage for success" (p. 31). While this interpretation may be the correct one, other interpretations are certainly possible as well (such as that the assessment was simply unable to predict which students were appropriate candidates for mainstreamed vocational programs). Further research would be necessary to establish which hypothesis is correct.

**Research question 3b.** Is the student's level of career/vocational maturity increased as a result of participation in vocational assessment ?

Only one study addressed this question directly. Menz, in the same 1978 study described above, also examined changes in various components of career/vocational development following participation in a two-week vocational assessment program. A positive impact on several components of career/vocational development was documented, based upon questionnaires from teachers and school counselors, as well as upon evaluator ratings and student scores on the Career Maturity Inventory before and after the assessment process. The specific effects upon career/vocational development are described below.

Students demonstrated ability to solve problems related to career choice at the same ability level as typical students, as measured by report from educational personnel and evaluators. This was supported by change on the associated scale on the Career

Maturity Inventory (CMI), which was in a positive direction and was significant at the  $p < .10$  level, but not at the  $p < .05$  level.

Similarly, students demonstrated modest improvements in their ability to formulate and select career goals, with changes on the CMI significant at the  $p < .10$  level of confidence. Questionnaires from counselors indicated major increases in formulating and selecting career goals during the semester of the evaluation, with continued improvement in this area during the succeeding year. Eventually, the students reached a level of ability similar to that of the typical high school student.

Improvements in other components of career/vocational development measured in this study were less consistent. Ability to formulate a career/vocational plan was found to be less than that of typical students, and no improvement was noted up to a full semester following the assessment. Some positive change in this area was evident on the CMI, but this was not at a statistically significant level, and it was not supported by the other sources of data. Similarly, the students' ability to make use of occupational information was not significantly improved by the assessment process, and continued to be below that of the typical student. In summary, Menz (1978) found that vocational assessment contributed to career/vocational maturity factors such as problem-solving and selecting and formulating goals, but had less impact upon factors

such as making use of occupational information and forming a vocational plan.

Neubert's study (1985/1986b) also addressed the issue of changes in career/vocational maturity as a result of vocational assessment experiences, but not in a direct way. In interviewing education personnel (special and vocational education teachers, guidance counselors, administrators, vocational evaluators, support service personnel), she found that 42% of these professionals perceived vocational assessment as being useful for the students' career/vocational exploration, presumably leading to improvements in career maturity factors such as awareness of occupational options. Neubert adds her own opinion that vocational assessment is particularly useful for career/vocational exploration when locally-developed work samples are included, which can provide the student with hands-on experiences that are directly related to available training options.

**Research question 3c.** Does vocational assessment contribute to the development of self-esteem, self-confidence, and/or positive self-concept in learning disabled students?

Two studies were identified which addressed this question directly. Menz (1978) included a measure of self-concept in his previously-discussed study of the effects of a vocational assessment program on reluctant learners. Data regarding student self-concept were gathered from the evaluators and project staff who participated

in educational followup, and from the students themselves, by means of questionnaires.

Responses from evaluators and project staff suggest that the students in the study demonstrated attitudes toward themselves that were at a level commensurate with that of other students. Potential *changes* in student self-concept, as perceived by evaluators and project staff, were apparently not measured in this study. Responses on the student questionnaires did not indicate changes in self-concept, although the author notes that there may have been a confounding factor in that the student questionnaire used in the study assessed student self concept in relation to the school setting.

These findings suggest that self-concept was not viewed by the professionals as a significant problem area for these students, and that students did not demonstrate improvements in this area, although this latter finding was equivocal.

In a second study, Dineen (1975) measured change in self-concept following vocational assessment with 21 reluctant learners from high schools in Wisconsin, using the Miskimins Self-Goal Other Discrepancy Scale (MSGO) for pre- and post-vocational assessment testing. This scale measures three areas: self-concept (how the person sees himself/herself), goal self-concept (how the person would like to be), and perceived responses of others (how the person believes others see him/her). Five measures are derived from the

scale.

Results were generally encouraging. Positive changes in self-concept mean scores were found in all five factors on the MSGO, although only two of the five were significant at the  $p < .01$  level. The author notes that 73% of the students demonstrated positive changes. This study also included a four-month follow-up of the students regarding their school performance and behavior. This portion of the study is not discussed here, but rather is included with the discussion of research question 3d, "Does vocational assessment contribute to changes in the student's behavior and/or attitudes toward school?" As Dineen suggests, however, changes in the student's self-concept could be expected to impact the student's school behaviors and attitudes.

**Research question 3d.** Does vocational assessment contribute to changes in the student's behavior and/or attitudes toward school?

Four studies were identified which addressed this issue. In the first study, P. R. Hoffman, Stanford and Wesolek (1972) describe a vocational assessment program for reluctant learners. Students participated in a two-week assessment, and then returned to their schools with recommendations for vocationally-relevant educational modifications to the school program. Data are provided regarding the first 11 students to complete this program. These preliminary data

suggest that vocational assessment with educational follow-up contributes to developing improved school attitudes and school behaviors in this population. Data collected by the end of the school year in which the assessment was completed demonstrate that school absences decreased by 70%, tardies decreased by 66%, classes skipped decreased by 80%, grade point averages improved by 14%, and "a notable change took place in overall appearance" (p.31).

In a second study which addressed this question, Ferstenou (1976) examined the effects on grade point averages (GPAs) when reluctant learners participated in a vocational assessment program, and when recommendations from that evaluation were subsequently followed. Ferstenou postulated that vocational assessment could provide a catalyst for change in these students, but that the changes begun during this process would need to be reinforced with participation in appropriate vocational experiences in school. Therefore, he looked for a correlation between the extent to which the schools implemented the recommendations from the assessment and change in the students' subsequent GPAs.

Results were disappointing. A trend toward increased GPAs was noted in the semester in which the vocational assessment was completed, but this change did not reach statistical significance, nor was it maintained in subsequent semesters. In his discussion of the results, the author suggests that vocational assessment may indeed

be an effective catalyst for change in school attitudes and behaviors for this population, but that it must be part of a broader program that includes appropriate school programming, and that resources in the rural Wisconsin schools participating in this study may have been too limited to provide the major programming changes necessary to see lasting student changes in the attributes measured.

In a third study, Menz (1978) also examined the effects of vocational assessment on school attitudes and behaviors. Factors addressed included quality, quantity, and level of effort in school work; student adjustment to school; and student attitude toward and interest in school. Results were mixed. Each factor is discussed below.

Regarding the first factor, teachers reported no change, and they also reported that these students continued to be below the level of other students in quality and quantity of school work and level of effort. In contrast, counselors reported marked improvement in this regard following vocational assessment, and also noted that these gains were maintained after one year. In addition, academic grades improved in the semester of the assessment, and this improvement continued, reaching statistical significance at one year. Vocational grades improved significantly one semester after the assessment, and the improvement was maintained after one year. The author concludes that changes in quality, quantity, and level of effort in school work tend to be significant by one year following the

assessment.

Regarding student adjustment to school, teachers reported no change following vocational assessment. Counselors, however, reported improvements in the semester of the evaluation, which continued during the following semester and approached the level of other, more typical students by the end of this semester. Improvements in attendance (minor), in decreased number of complaints from school staff (modest,  $p < .10$ ), and in decreased contacts with the law (significant,  $p < .05$ ) were all noted initially but were not sustained one year after the assessment. The author concludes that changes in school behavior and attitude following vocational assessment do not tend to be well achieved.

Regarding the third factor, interest in and attitude toward school, results were generally negative. Teachers reported no change in the students' level of interest and in their attitudes. Evaluators and project staff reported that these remained somewhat below the level of other, more typical students. Student questionnaires did not suggest significant change in overall attitude. Counselors, however, reported a significant increase in student interest in and positiveness toward school. To summarize the findings from this study, students generally demonstrated significant improvements in quality, quantity, and level of effort in school work within one year of the assessment. Findings were inconsistent but generally negative regarding changes



in school adjustment, attitude, and level of interest.

Finally, the Dineen (1975) study discussed above also addressed the issue of changes in school behaviors and attitudes following vocational assessment. In this study, 21 reluctant learners who had participated in a vocational assessment were the subjects of a follow-up investigation four months after the assessment process. Interviews with the project directors and questionnaires completed by the evaluatees' teachers indicated that 67% of these students had demonstrated improvements in school performance and behavior (74% when students who had moved or for whom no information was available were eliminated). Areas of improvement included quality and quantity of school work, grades, attendance, and interpersonal adjustment.

While these studies suggest many possibilities for positive treatment effects from the process of vocational assessment, one additional study raises some questions regarding the importance of this process as perceived by the students themselves. Lynch (1985), in her follow-up study of graduates of a high school special education program, found that students who were unable to remember correctly whether they had had a vocational assessment in high school were more likely to demonstrate vocational success after graduation than were students who *were* able to remember!

### Summary, Treatment

This section has provided a discussion of vocational assessment as a treatment process. In reviewing background information, it was noted that this view of the process has a long history in the rehabilitation literature, with research providing mixed support for the use of vocational assessment to facilitate client change in areas such as self-knowledge, career/vocational maturity, self esteem or self concept, and attitude toward work or school. Similar concepts have been applied in discussions of vocational assessment in educational settings, for both nonhandicapped and special needs students.

Following this background information, research was reviewed regarding the benefits of vocational assessment as a treatment process for students with learning disabilities and other related special needs. Few studies could be identified that addressed these issues, and, while these few studies met the criteria for inclusion in this review, none of them focused specifically on assessment of students with learning disabilities.

Two studies directly addressed the use of vocational assessment in increasing the students' self-knowledge; both suggested positive effects.

In measuring the effects of vocational assessment on the students' career/vocational maturity, one study indicated positive

effects, but not in all factors measured; the other study provided indirect information suggesting contributions to developing career/vocational maturity.

Two studies were identified that addressed effects of self concept, one with positive results and one with negative results.

Results were also equivocal regarding vocational assessment's effects upon school behaviors and attitudes. Three studies indicated positive changes in students' grades and in other aspects of school performance, while one study found no lasting impact on grades that could be correlated with the schools' implementation of the recommendations from the vocational assessments. Three studies documented positive changes in some behaviors believed to be indicators of school attitudes, but not in all behaviors under consideration.

These findings suggest that vocational assessment may be useful as a treatment process, particularly in increasing self-knowledge, career/vocational maturity, and grades in school. Possible effects on self concept or self esteem are not well understood, nor are effects in the related areas of school motivation, interest, attitude, or behavior. Research in this area for special needs students in general is extremely limited; for learning disabled students specifically, it is nonexistent.

#### **Section 4: Specific Factors**

In this section, specific factors in vocational assessment which may be associated with positive outcomes are addressed. Issues such as which assessment model is most effective, when should assessments be completed, who should implement the assessments, and what instruments or techniques they should use, have been the subject of considerable debate in the literature. Is there research supporting a particular position on any of these issues?

In the background discussion, a summary is provided of some of the opinions expressed in the literature regarding each of these issues. As seen in the background discussion, these particular issues have been addressed primarily in the education literature, but occasional references to them in the rehabilitation literature have been noted as well. Following the background, research with learning disabled students that is relevant to each of the specific research questions is discussed.

#### **Background**

**Model.** One of the issues regarding vocational assessment in educational settings that is most frequently discussed in the education literature is what model should be used for the delivery of this service. Should it be an assessment center-based model, adapting the model developed in rehabilitation settings for

educational use, or a curriculum-based model, integrated within the school curriculum, or a combination of these two principal models?

Proponents of the curriculum-based model note a number of limitations in center-based assessments. First, emphasizing the importance of placement recommendations and IEP goals and objectives as primary purposes of vocational assessment, some writers contend that center-based assessments, as contrasted with curriculum-based assessments, do not produce results which are easily translated into educational planning, and in general are too far removed from educational personnel. This makes it less likely that the assessment results will actually be used (Ianacone & Leconte, 1986; Peterson, 1985b; Porter & Stodden, 1986; Stodden & Ianacone, 1981; Stodden et al., 1986a). In addition, the difficulties in communication may go the other way as well, so that center-based assessments are often completed without knowledge of the wealth of previously-available information about the students, and thus tend to duplicate what is already known (Peterson, 1985c). Finally, some writers contend that center-based assessments are too expensive, and that curriculum-based assessments are more cost-effective (Ianacone & Leconte, 1986; Peterson, 1985c; Petzy, 1983).

Many professionals support the center-based model, however. Peterson (1981), in his survey of professionals in the vocational assessment field, reports that the two assessment models most often preferred are comprehensive school-based assessment centers and

assessment centers developed cooperatively with other agencies or schools. Proponents of the center-based model tend to acknowledge the difficulties that have been encountered in adapting the rehabilitation model for educational use, but propose modifying, rather than replacing, this model. A variety of modifications have been documented in the literature to address the difficulties noted above, such as revised report formats and/or follow-up services (Ashley et al., 1986; Bohnenstiehl, 1985; Dick, 1987; D. L. Kaplan, 1985; Menz, 1978; Peterson, 1985b, 1985c).

Proponents of center-based assessment contend that it has a primary advantage in that it can be completed in a setting that closely resembles real work (Anderson, 1981; Emery, 1985). Others writers have noted that center-based assessment allows for observation of the evaluatee's adaptation to different types of supervision (Speiser, 1970), and that it affords the student a taste of other work-related experiences, such as completing an initial application or an exit interview (Dick, 1985).

D. L. Kaplan (1985) reports that when vocational assessments are completed in an assessment center, by evaluators who are not part of the student's regular educational program, the evaluator can provide a non-biased, objective view of the student, and can discuss recommendations more freely. In one of the model programs described by Anderlini and Zittel (1983), after six years of using an

assessment model that involved assessment activities within the classroom, the recommendation of the program's administrator was that a central location for assessments be established instead.

Finally, some writers contend that both models are valuable, and that schools should develop a comprehensive program, in which both curriculum-based and center-based assessments are available, to be used as needed for individual students (Peterson, 1985b, 1985c, 1986, 1987).

The literature reviewed is examined to determine if there is any evidence to suggest that one model is more effective than the other.

**Age or Grade.** At what age or grade should students participate in vocational assessment services? This question and the question discussed above are interrelated, as proponents of curriculum-based assessment contend that assessment should be ongoing, throughout the school years. When should it receive its major focus? A review of surveys of vocational evaluators, descriptions of individual state assessment guidelines, and professional opinions expressed in the literature indicates that vocational assessment is generally recommended sometime between eighth and tenth grades (Chase et al., 1987; Leconte, 1985; McCray, 1982; Peterson, 1981, 1985a; Roberts, Doty, Santleben, & Tang, 1983). These references generally link the timing of the assessment to the timing of placement decisions for vocational education.

However, if the treatment benefits of vocational assessment are considered, a different timeline might be appropriate. Some evaluators and other related professionals note that students often do not seem developmentally ready to profit from vocational assessment during the early high school years. For example, in an assessment program described by L. Kaplan et al. (1986), practices were modified to provide assessment services only for high school students in the last semester of the junior year or the first semester of the senior year. This change was made because younger students were found to be less likely to benefit from the process. Although the change reflects impressions and conclusions drawn from practical experience rather than from controlled research, there is considerable support for such impressions in the literature.

Super (1983) underscores the importance of taking into account the individual's level of career/vocational maturity, and notes that for students not yet ready to receive, integrate, and make use of assessment information, a recommendation for assessment and counseling may be inappropriate. Other writers (Ginzberg, Ginsburg, Axelrod, & Herma, cited in Osipow, 1983; Super, cited in Osipow, 1983) in the field of occupational development also suggest that high school students may not be developmentally ready for making career/vocational choices. This controversy is highlighted in the following statement from Osipow:

Choices made by boys during their early teen years are neither



stable nor well founded. Such a finding naturally poses problems for educators concerned with developing curricula designed to teach vocationally related skills, beginning at about the ninth grade period, since assignment of students to relatively narrow programs of study is thus questionable. The likelihood that a student expressing a preference for auto mechanics or law at age fourteen will express the same preference at 18 is relatively slim. (p. 168)

Similarly, Jordaan and Heyde (1979) take issue with the "Comprehensive Career Education Model of the 1970's, in which exploration seemingly ends with entry into the 10th grade" (p. 177).

Does the research suggest a certain age or grade at which vocational assessment is most effective? Is one age best for placement purposes, and another best for treatment purposes? The literature reviewed is examined to determine if there are research-based answers to these questions.

**Length of Assessment.** Is the length of the assessment process associated with its effectiveness? This issue has received some attention in the rehabilitation literature. Studies by Dunn (1977) and by Chan, Parker, Carter, and Lam (1986) suggest that vocational assessments at least five days long are more effective than shorter assessments. Both studies were conducted with general rehabilitation populations. Dunn found that inter-rater reliability on rating scales was adequate only after at least five days; Chan et al. found that repeated practice trials on an assessment task over a five day period identified many more clients able to reach competitive

standards than would have been identified on a shorter assessment. On the other hand, Early and Bordieri (1988), working with a general rehabilitation population, found that clients were more satisfied with a shorter assessment, although there was no indication of *how* short.

These findings suggest that assessments of at least five days may be necessary for adequate assessment in rehabilitation settings. Research is examined to determine if similar information is available for educational settings.

**Techniques.** Are specific instruments or assessment techniques more effective than others? This question is intertwined with issues regarding who should provide vocational assessment services. A distinction is sometimes made between assessments completed by trained evaluators, using a variety of instruments and techniques from which they synthesize results and generate recommendations, and assessments completed by technicians or aides who have little or no training in vocational assessment, using commercial assessment systems which may generate results and recommendations with little evaluator input. For example, Kaufman (1981) states:

It became apparent to me as I observed clients being evaluated on the various commercial vocational evaluation systems that the single most important factor of the process was the person conducting the evaluation . . . A great deal of formal training and study had to precede the use of the systems for effective results. As a consequence, I have concerns about the relatively large proportion of our special needs resources that are being

channeled into procurement of vocational evaluation equipment, and the almost nonexistent proportion of resources that are being used for training for vocational special needs personnel to be effective evaluators. (p. 2)

In a similar vein, Brandon (1973) notes that "A [vocational] evaluator has many tools of evaluation at his disposal . . . However, his most potent evaluation tool is himself" (p. 54). Hursh (1984) expresses similar sentiments. Menz (1985) discusses the vocational evaluator as synthesizer of information, and evaluation as a complex process that goes beyond testing technology. These writers suggest that the skills of a professional in the field are more critical to the assessment process than are the instruments. Some writers contend that when trained evaluators are in short supply, expensive assessment systems are purchased as an inappropriate alternative for providing vocational assessment (Botterbusch, 1985; D. L. Kaplan, 1985)

Although manufacturers of some commercial assessment systems may claim that their products provide adequate vocational assessments for special needs students, many professionals in the vocational assessment field have expressed concerns about such assessment practices (Botterbusch, 1985; S. W. Thomas, 1989). Chase et al. (1987), in their survey of school-based evaluators, report that many evaluators do not find commercial systems useful in their original form. Linn and Destefano (1986), in another survey, note that

although most programs surveyed were using commercial vocational tests, some were beginning to develop local work samples as well, suggesting that some need was noted that was not being filled by the commercial tests.

D. L. Kaplan (1985) notes the contrast observed between vocational assessments completed routinely with commercial systems used by marginally trained examiners, which were not useful in the districts she discusses, and assessments later completed by trained evaluators who were able to synthesize assessment information from a variety of sources and make it usable for education personnel. Similarly, in a survey completed by Peterson (1981), vocational assessment professionals expressed their view that a wide variety of techniques should be available to the evaluator, and that the assessment process should be individualized for students. Yet many school assessment programs are based primarily, if not exclusively, upon commercial systems which provide the same assessment for all students.

The issue of testing aptitudes/traits versus testing student competencies on specific tasks related to vocational training has also been raised. Some authors contend that aptitude/trait assessment is used primarily for screening out rather than generating alternatives for students (Peterson, 1988; Schneck, 1976); others contend that measuring performance after practice is much more meaningful than measuring one-trial learning, and that this is not possible with most

aptitude/trait testing (Stodden & Ianacone, 1981). Concerns have been raised regarding the use of standardized interest tests as well (Elrod et al., 1989; Buschner, Watts, Siders, & Leonard, 1989).

The literature is examined to determine if there are research-based answers to these questions regarding the most effective instruments and/or methods of assessment.

**Personnel.** If assessments are to be completed by trained professionals, what training is necessary? In a survey of coordinators of training programs for rehabilitation professionals (Sankovsky, 1973), the majority believed that training in vocational assessment should be completed as part of a program of study for an advanced degree. However, few programs are available which specifically train evaluators in vocational/special needs assessment (Razeghi, 1982). In school-based assessment programs, are education personnel (eg. special education teachers, vocational education teachers) the most appropriate group for providing vocational assessments, or should assessments be completed by professionals with training specifically in vocational assessment, though not necessarily in educational settings?

In a related personnel issue, should an additional credential or certification be required for teachers and/or for vocational evaluators? Do evaluators with such credentials provide more effective assessments for students with learning disabilities?

Several writers have addressed the issue of whether a teaching credential should be required for vocational evaluators in school settings (Ellsworth & Noll, 1978; Kinsley, 1977; Meers, 1985; Napier, 1985; S. W. Thomas, 1986). This topic has been the subject of some debate, leading to developing position papers by various groups (Brolin, 1986; Clark, 1981; Peterson, 1986; Sitlington, Brolin, Clark, & Vacanti, 1985) regarding the competencies needed and the appropriate professional preparation for providing vocational assessment services within school settings. The research is examined for information relevant to this question.

### **Review of Research with Students with Learning Disabilities**

*Research Question #4: Are there any specific factors that can be identified in the literature which are associated with positive impacts of vocational assessment?*

Figure one summarizes the studies of vocational assessment with learning disabled students and related groups that were reviewed in this report. Whenever information regarding the "specific factors" in question here was reported in the study, it is included in this chart. Studies which specifically measured effectiveness of

vocational assessment for prediction, prescription, or treatment were included. When outcomes were measured indirectly, such as by teacher report, these studies were included in the chart, but were identified as being based on indirect information. Studies that were related to these issues but which did not measure student outcomes, such as studies of IEP content, were not included in the chart.

**Research question 4a.** Are positive results more often associated with either center-based assessments or curriculum-based assessments?

Cobb and Larkin noted in 1985 that "Research examining costs and benefits of different vocational assessment models is virtually nonexistent" (p. 12). The situation is apparently unchanged in 1990. No studies were identified which directly compared the effectiveness of different assessment models. When an effort was made to compare studies which used center-based assessment with studies which used curriculum-based assessment, little additional information could be added. All studies reviewed regarding the effectiveness of vocational assessment, measured in terms of student outcomes, were completed with center-based assessments.

A few studies touched briefly on this issue, without directly measuring effectiveness in terms of student outcomes. One study included an evaluation of a curriculum-based vocational assessment

FIGURE 1

STUDY	MODEL	AGE or GRADE	METHODS/ LENGTH	PERSONNEL	EFFECTS		
					PREDICT	PRESCRIBE	TREAT
Bohnenstiehl 1985	center	NR	NR	NR	NA	+	NA
Brosnahan 1988	center	16-29 yrs at followup	MESA & SDS/ < 1 week	NR	-	- interests only	NA
Dineen 1975	center	grades 9-12	comprehensive/ 2 weeks	trained evaluators	NA	NA	+
Evans 1986	center	grade 9	varied/ usually < 1 week	NR	NA	+ P	NA
Ferstenou 1976	center	NR	comprehensive/ 1-2 weeks	trained evaluators	NA	NA	+ short term
Hoffman et al. 1972	center	NR	comprehensive/ 2 weeks	trained evaluators	NA	NA	+
Kennedy 1974	center	NR	comprehensive/ 2 weeks	trained evaluators	NA	NA	+
Menz 1978	center	grades 10-11	comprehensive/ 2 weeks	trained evaluators	NA	NA	+
Neubert 1985/86	center	grades 9-12	comprehensive/ 3-10 days	trained evaluators	+	- S + P	+
Ryan 1981	center	grade 10	NR/ 5 days	NR	-	NA	NA
Scott & Prezioso 1986	center	NR	comprehensive/ 2-4 days	NR	+	NA	NA

+ positive relationship  
 +\* positive relationship,  
 indirect sources

- no significant relationship  
 S prescribe: services  
 P prescribe: placement

NR not reported  
 NA not applicable  
 to this study



model (Stodden & Meehan, 1987). Teachers completed a questionnaire regarding their awareness of how to use the student rating forms developed for this project, as well as their view of the appropriateness of the items and manner in which the items were rated. The responses of these 14 teachers were generally positive. The authors conclude that this indicates that the assessment model is promising, and that its use should be expanded.

On the other hand, in his pilot test of a curriculum-based assessment model, Stodden (1980b) reports that, in developing IEPs, teachers were less likely to incorporate observations of student performance on informal vocational activities than to incorporate formal test results. Similarly, in studying the relationship between assessment results and IEP content, Stodden et al. (1986b) found that assessment results generally were not reflected in IEPs, but that this problem was somewhat less pronounced when results came from a formal assessment than from an informal assessment.

One other piece of information pertaining to this issue appears in Neubert's study (1985/1986b). She found that a close relationship between vocational evaluators and vocational educators was essential for developing work samples related to the vocational education programs, for advocating for special needs students, and for feedback regarding appropriateness of the recommendations. For this reason, Neubert concludes that, if assessment is to be used for

determining vocational education placements, it is essential that the assessment be completed at the vocational education site, where this level of ongoing collaboration is possible.

Taking the literature as a whole, it seems that there is some degree of support for the effectiveness of center-based assessments, but minimal support at present for the effectiveness of curriculum-based assessments. As Neubert (1985/1986b) states, "Interestingly, the adaptation of the rehabilitation model has been sharply criticized, yet new models are proposed with little research to demonstrate their effectiveness" (p. 46).

**Research Question 4b.** Are positive results more likely when assessments are completed at some specific age or grade level?

Again, there was not sufficient information to provide an answer to this question. Five studies were identified which reported the age or grade level of the students. Of these five, two studies (Dineen, 1975; Neubert, 1985/1986b) included students from all four years of high school, grades nine through 12. The remaining three included a study of students assessed in ninth grade (Evans, 1986) which showed positive effects for prescription/placement, a study of students assessed in 10th grade (Ryan, 1981) which did not show significant effects for prediction, and a study of students assessed in 10th and 11th grades (Menz, 1978) which showed positive effects for treatment.

**Research Question 4c.** Is the length of the assessment process associated with its effectiveness?

Information regarding this question was sketchy. One study (Bohnenstiehl, 1985) did not report the length of the assessment and did not provide enough additional information to determine its length. Two additional studies (Brosnahan, 1988; Evans, 1986) did not report the length of the assessment process, but did report the instruments used for assessment, which was enough information to determine that the assessments were less than a week long. One additional study (Scott & Prezioso, 1986) reported that the assessment was less than one week long. In this group of the shortest assessments, one study suggested that vocational assessment is effective for prediction (Scott & Prezioso), one suggested it is effective for prescription (Evans), and one did not show significant correlations in factors related to prescription or prediction (Brosnahan).

One study (Ryan, 1981) used one-week assessments; these did not predict well. Two studies (Ferstenou, 1976; Neubert, 1985/1986b) reported on assessments of one to two weeks. Results were mixed, with Ferstenou's study suggesting no long term treatment effects from vocational assessment, and Neubert's study suggesting, through indirect sources, that it is effective for prediction, placement, and one aspect of treatment (career exploration), but not for prescription of services. In Neubert's study, vocational evaluators interviewed reported that when they were

forced to shorten assessments because of external considerations, this limited the goals of the assessment. For example, with a shorter assessment, they indicated that they could still make placement recommendations, but were unable to address prevocational needs or to allow for the students' vocational exploration.

Finally, four studies (Dineen, 1975; P. R. Hoffman et al., 1972; Kennedy, 1974; Menz, 1978) reported on assessments two weeks long. All four studies demonstrated positive treatment effects from vocational assessment.

These findings provide few answers. If the studies by Evans (1986) and Scott and Prezioso (1986) were to be successfully replicated, this would suggest that short assessments, of less than a week's duration, are adequate for predictive and prescriptive/placement purposes. Treatment effects may be produced by relatively long vocational assessments, of two weeks' duration; whether these effects could be produced with a shorter assessment is unknown.

**Research Question 4d.** Are positive results more often associated with any specific assessment techniques or methods? Factors under consideration here include the interplay between assessment instruments or techniques and the evaluators who use them. For example, are positive results more often associated with the use of a specific type of assessment instrument? Do assessment

programs in which a skilled evaluator (whether trained primarily as an educator or as an evaluator) plans an individualized assessment, and then synthesizes the information to formulate recommendations, more often produce positive results than do assessment programs in which a technician uses commercial assessment systems with computer-generated results and recommendations?

Again, results in this area were sketchy. No studies were included which used only one specific test or system. However, two studies (Brosnahan, 1988; Evans, 1986) relied primarily on computerized assessments. The training/educational backgrounds of the evaluators were not described. Of these two studies, one (Evans, 1986) was effective for making prescriptive/placement recommendations; the other (Brosnahan) did not establish significant correlations related to prediction and prescription.

Eight additional studies (Dineen, 1975; Ferstenou, 1976; P. R. Hoffman et al., 1972; Kennedy, 1974; Menz, 1978; Neubert, 1985/1986b; Ryan, 1981; Scott & Prezioso, 1986) reported using a comprehensive assessment process. With the exception of the last two in this list, all reported that the assessments were completed by professionals with training in assessment; the two remaining studies did not report the background of the evaluators. Most of these studies suggested positive effects from the assessment, in different areas, as indicated in figure one.

Again, if Evans' (1986) study were to be successfully replicated, this would suggest that an assessment based primarily upon a computerized assessment instrument would be adequate for making prescriptive/placement recommendations. This is a contrast to the indirect findings in Neubert's study suggesting that the use of locally-developed work samples which are linked to the specific training options available is essential to the process of making placement recommendations. No information is available regarding whether a computerized assessment is effective in producing predictive recommendations, prescriptive/services recommendations, or treatment effects.

**Research Question 4e.** Is there a difference, in terms of efficacy, between assessments completed by educational personnel (eg. special education teachers or vocational education teachers) and those completed by professionals specifically trained as vocational evaluators?

No answers were identified in the literature when studies of effectiveness of vocational assessment for students with learning disabilities were reviewed. Those studies which described the training of the evaluators all used professionals trained, or in training, as vocational evaluators. There were no studies measuring student outcomes in which the evaluators were noted to be teachers. Thus it was not possible to compare outcomes with these two groups of evaluators.

Two studies were identified which provided some related information, however. A correlational study (Raepsaet, 1984) found no significant correlations between teacher ratings of vocational attributes of mildly handicapped students and ratings on the same attributes completed at a vocational assessment center. This suggests that evaluators with differing educational backgrounds may generate different results. Whether one group provided more effective assessments than the other apparently was not addressed in the study, however. No specific results are discussed here as only the abstract of this study was available for review.

Stodden (1980b), in reporting on pilot testing an assessment model, notes that teachers had difficulty implementing two aspects of vocational assessment, despite the training program provided. First, they had difficulty completing behavioral assessments; their scores on these assessments showed less correlation with those of the project staff than their scores in any other area. Second, the teachers had difficulty distinguishing between interests and temperaments. These findings suggest some potential difficulties in using educational personnel for vocational assessment purposes, although there is no indication that these difficulties are insurmountable, nor that they would not also be observed with evaluators of different educational backgrounds.

**Research Question 1f.** Are there other factors that emerge as likely contributors to positive results when vocational assessment research is reviewed?

Several writers have stressed the importance of follow-up support services following vocational assessment. Neubert (1985/1986b) and Leconte and Neubert (1987), for example, view vocational assessment as part of total service delivery system, which would be less effective without the other components of the system, particularly the follow-up personnel. P. R. Hoffman et al. (1972) state, "Vocational evaluation alone is not enough. . . Vocational evaluation must be followed up by meaningful programs in the high school to implement findings and to capitalize on the motivation stimulated by the evaluation" (p. 30). Descriptions of programs with strong follow-up components are common in the literature (eg. D. L. Kaplan, 1985; Menz, 1878).

The majority of the studies reviewed described assessment programs which did include follow-up support services. There were no studies which specifically stated that follow-up services were not provided, although three studies did not mention follow-up services at all. Without knowing if these programs did have follow-up services, no comparisons are possible.



### **Summary, Specific Factors**

It was not possible to answer these research questions from the literature at this time. No studies were identified which specifically offered comparisons on any of the issues. In attempting to compare results of studies representing different sides of each of these issues, it was discovered that there were too many variables and too few studies for meaningful conclusions. Debate regarding these issues is common in the literature, but research supporting the arguments on either side is generally inconclusive or nonexistent.

### **Section 5: Summary of Results**

The literature review indicates that the use of vocational assessment for predictive purposes has been adapted for educational settings, so that instead of being used for screening in/out participants in vocational programming, it is used to predict the level of vocational programming at which the student currently could be expected to be successful. There were some indications that vocational assessment is helpful in predicting which students are ready for mainstream vocational education placements, but research at this time is neither consistent nor extensive. No studies addressed vocational assessment's effectiveness in predicting student success in other levels of vocational programming, nor in job placements.

The studies regarding the use of vocational assessment for

prescription generally indicate that the assessment process does generate prescriptive recommendations, both for specific placements, and for services, adaptations, or other program elements. The perceptions of educational personnel regarding the usefulness of the recommendations in the services/adaptations category are mixed, and, even when valued, these recommendations generally are not followed. In contrast, prescriptive placement recommendations generally are implemented. There are some promising indications that these placement recommendations contribute to student success. The quantity of research is very limited, however.

The findings suggest vocational assessment may be useful as a treatment process, particularly in increasing self-knowledge, career/vocational maturity, and grades in school. Possible effects on self concept or self esteem are not well understood, nor are effects in the related areas of school motivation, interest, attitude, or behavior. Research in this area for special needs students in general is extremely limited; for learning disabled students specifically, it is nonexistent.

It was not possible to identify any specific factors (eg. specific assessment model, personnel, techniques, etc.) which are related to positive outcomes in any of the areas addressed. No studies were identified that specifically addressed comparisons related to these factors, and the body of research was too limited for making

comparisons among different studies on any of the specific issues identified.

Taken as a whole, these studies suggest some promise regarding the effectiveness of vocational assessment for students with learning disabilities, but at present the research is far from conclusive.

### **Discussion of Results**

The most significant finding in this review of the literature was how little research has been published regarding the effectiveness of vocational assessment in meeting its stated purposes when used with high school students with learning disabilities. As noted in the preceding summary, there are a number of promising indicators regarding its effectiveness, but the research is far from conclusive at this time.

One area was identified in which there *was* fair consistency in the research. When vocational assessment led to recommendations for program components such as developing prevocational skills, modifying curriculum or instructional methods, providing support services, etc., these recommendations often were not implemented. There were many different views regarding the roots of this problem, and many different suggestions for solving it, but the existence of the problem was fairly consistently documented. It is unknown at this time whether the solution ultimately lies in training for evaluators

in making educationally-relevant recommendations (Ashley et al., 1986; Chase et al., 1987; D. L. Kaplan, 1985), training for educators in interpreting and making use of assessment recommendations (Anderlini & Zittel, 1983; Elrod et al., 1989; Stodden et al., 1986a, 1986b, 1989), administrative policy requiring implementation of assessment recommendations (Neubert, 1985/1986b; Neubert & Leconte, 1990), materials facilitating the translation of assessment information into educational goals and objectives (Dick, 1987; Stodden et al. 1986b), alternative models of vocational assessment (Stodden et al., 1986a, 1986b, 1989) and/or some other, as yet unidentified intervention. However, this is clearly an area in need of attention in educational planning. Measuring the effectiveness of the various interventions proposed is indicated, followed by implementation of those interventions found to be useful.

A second area which was noted with some consistency in the literature was the potential use of vocational assessment to facilitate access to vocational education for learning disabled students. This was rarely stated as a purpose of vocational assessment, yet several studies documented its usefulness in this regard. Neubert (1985/1986b, 1986a) found that vocational evaluators served as effective advocates for special needs students regarding placement decisions in vocational education programs. In addition, vocational instructors reported that they were more open to

accepting these students into their programs when this was recommended by the evaluators and when they knew the evaluators and support service personnel would be available for consultation should difficulties arise. Ashley et al. (1986) found that placements of special needs students in mainstream vocational programs increased following their participation in vocational assessment. Similar effects have been reported by others as well (Neubert and Leconte, 1990; Anderlini and Zittel; 1983).

Some studies have demonstrated that access to vocational education is limited for students with learning disabilities (Cobb & L. A. Phelps, 1983; Corthell & Van Boskirk, 1984; Repetto, 1986). This is a significant problem, as other studies have suggested that inadequate vocational preparation contributes to the postschool vocational difficulties encountered by this population (Razeghi & Davis, 1979; Szuhay et al., 1980). If vocational assessment is able to facilitate access to vocational education programs, as is suggested by the studies described above, this may contribute significantly to successful postschool adjustment for these students. This tentative finding, if confirmed, may thus have significant educational implications, suggesting that vocational assessment should be used for this purpose in educational settings.

It is not possible to identify other educational implications at this time. The major implication of this study is the need for

additional research, which is discussed in the last section of this chapter.

In reviewing literature for the preparation of this report, it was interesting to note some common threads in previous literature reviews and reports of the "state of the art" on this topic. Early publications in the rehabilitation literature regarding vocational evaluation were more likely to be program descriptions, procedural manuals, or opinion papers than research reports. Previous writers reviewing the literature generally emphasized the lack of controlled research (eg. Barad, 1972; Berven, 1983; Herbert & Menz, 1981; McDaniel & Couch, cited in Wilkins, 1983; Spergel, 1970; Wilkins, 1983).

Gradually, a larger research base for practice evolved. However, each time a new population was added to the list of those eligible for vocational rehabilitation services, vocational assessment professionals were again faced with attempting to adapt known techniques and instruments to an unknown population, without knowing whether these techniques and instruments were appropriate or effective for the new group of clients. During these periods, the literature once again was filled with program descriptions, procedural manuals, and occasional opinion papers, as professionals in the field attempted to share their knowledge and experiences in serving each new population. At least a few controlled studies generally followed these periods.

Perhaps the field is now undergoing this transition regarding services for individuals with learning disabilities. Practitioners and researchers in the rehabilitation field have addressed the needs of this population for less than a decade. Educational personnel have long been familiar with students with learning disabilities, but the educational adaptation of vocational assessment practices to this population is relatively new. Given this short history, perhaps it is not surprising that the vast majority of the literature at present is made up of descriptions of innovative or model programs, procedural manuals, opinion papers, conceptual models that attempt to clarify terminology and goals, and critiques of all of the above. As was seen in the rehabilitation literature, perhaps these publications have laid the necessary groundwork (establishing the vocabulary, defining the issues) for future research. The research reviewed in this study, while limited in quantity, suggests that this process has begun.

In addition to the historical considerations, there are other potential contributors to the paucity of research supporting the use of vocational assessment with students with learning disabilities. One major difficulty in measuring its effectiveness is the role of vocational assessment as one component of a comprehensive service delivery system. Vocational assessment is rarely, if ever, used in isolation as either an assessment technique or an educational/therapeutic intervention. Measuring the effectiveness of

one piece of a comprehensive program in isolation is a difficult proposition.

A related complicating issue is the question of when to measure effectiveness. Is success in a vocational training program an adequate measure of effectiveness? If the ultimate desired outcome is successful employment, is this what should be measured? If so, the difficulty of separating the effects of vocational assessment from the effects of other variables becomes even more complex. As Vandergoot (1987) notes, vocational assessment is a service generally provided early in the transition or rehabilitation process, usually many steps removed from the eventual outcomes considered to be appropriate measures of effectiveness. Several other writers have noted that the issue of when to measure change is particularly significant when considering the effectiveness of vocational assessment as a treatment process (Atlanta Employment Evaluation and Service Center, 1971; Menz, 1978; Nadolsky, 1973). If this intervention is an effective treatment process, when would it be expected that the effects would be apparent, and for how long?

Other barriers to research regarding vocational assessment that have been identified in the rehabilitation field may also have application to the assessment of students with learning disabilities. Barad (1972) noted that the field at that time lacked a "quantitative frame of reference" regarding the content of evaluation, as well as a



"unique body of theoretical constructs" (p. 36).

Since that time, the situation has been remedied to some extent in the rehabilitation field by efforts to establish common definitions and theoretical constructs (VEWAA, 1975). However, this process has not been completed for the adaptation of vocational assessment practice in educational settings. Neubert (1985/1986b), for example, notes that the assumptions and theoretical bases for vocational assessment's application to educational settings have not yet been formalized, thus impeding research regarding its effectiveness. Similarly, Hancock (1984/1985) noted a lack of a recognized, systematized approach to vocational assessment in educational settings. The variety of methodologies documented by Hancock tend to limit the scope and applicability of research regarding vocational assessment's effectiveness.

Other barriers to research which are common in examining human services in general are also noted in the vocational assessment field, such as financial limitations, as well as the ethical dilemmas posed by designing controlled research with human subjects who would presumably benefit from the services to be studied.

As has been suggested previously in this review, the field of vocational assessment has grown and changed, and with these changes have come additional research needs - new questions, and new applications for old questions. Although Menz was not referring specifically to research regarding individuals with learning

disabilities, the following comment from his 1985 literature review reflects the need for research regarding the application of this service to new populations and settings:

Many of the issues which were raised in the 1960s and 1970s will continue to be ones we must face in research, not because of a failure of the discipline, but because they are, quite simply, the questions we must repeatedly ask if vocational assessment is to remain real: Is what we are doing consistent in terms of the people we serve? Is it valid for the purposes and persons we use it with? Does it produce the desired effects efficiently? Does it do so without prejudice? Is it needed? What is wrong with it and how can we improve it? Are we competent to do it? Is it meeting the needs of our target population? (Menz, 1985, p. 57)

Although the barriers to research, described above, will continue, so will the need for answers to these questions. Additional research is imperative, in the interest of improving programs, appropriately allocating resources, and contributing to professional satisfaction in providing effective services. Recommendations for further research are discussed in the section that follows.

### **Recommendations for Further Research**

This review suggests many needs for further research regarding the effectiveness of vocational assessment for students with

learning disabilities. Additional research is needed both to establish what role is appropriate, and to establish what specific components are effective in adapting vocational assessment practices for this population. This applies to every area addressed in this report. Questions pertaining to each area are indicated below.

**Research Needs Regarding the Use of Vocational Assessment  
for Prediction and Prescription**

1. How effective is vocational assessment for determining which students are ready for mainstream vocational education placements? For other levels of vocational programming?
2. How effective is vocational assessment in identifying a specific vocational placement that is appropriate for the student's combination of interests, aptitudes, abilities, and, eventually, his/her local job prospects?
3. What strategies are most effective for identifying critical skills needed for the specific placements available within a district or cooperative?
4. What strategies are most effective for assessing the student's competencies in these critical skills? For determining which additional competencies the student needs to develop prior to placement?
5. How can assessment results best be communicated to the

personnel responsible for educational planning? What strategies/practices are most effective for facilitating the translation of assessment results into specific educational plans for a given student?

6. How effective is vocational assessment in facilitating access to an appropriate vocational education placement for a student with learning disabilities? What are the most effective components of the process in this regard? What are appropriate advocacy efforts for a vocational evaluator?

### **Research Needs Regarding the Use of Vocational Assessment as a Treatment Process**

1. What are the potential "process" benefits of vocational assessment for a student with learning disabilities? Is vocational assessment an effective catalyst for change in the student's level of career maturity, self-awareness, motivation in school, and/or self esteem/self-concept? Are there other potential treatment benefits of vocational assessment, such as changes in the student's perception of locus of control?

2. Are potential changes of a long or short term nature?

3. What techniques are most effective for facilitating these changes? Are different techniques more effective for producing long or short term effects?

4. What effect does the evaluator/evaluatee relationship have in facilitating these changes?

5. Does vocational assessment stand alone as a treatment process, or is it effective only with certain follow-up services or subsequent programmatic changes? What specific components are necessary?

6. What are the effects of vocational assessment upon the parents of a learning disabled student? Is there a change in the parents' perception of the student's abilities? Does the assessment facilitate positive change in the student's relationship with his/her parents?

**Research Needs Regarding Specific Components of the Vocational Assessment Process: What are the Best Practices in Vocational Assessment for this Population?**

1. Which techniques are most effective for vocational assessment with students with learning disabilities? Are commercial work samples, locally-developed work samples, computer-based assessment packages, paper-pencil tests, or combinations of these techniques most effective?

2. Which specific assessment instruments are reliable and valid for vocational assessment with high school students with learning disabilities?

3. Does the sequence in which the components of vocational assessment are implemented have an impact upon its effectiveness?

How and when is feedback best provided to students?

4. What are the best practices regarding the interpretation of results? What are the key decision points in interpreting test scores, and what are appropriate considerations in making these decisions? How can scores and other information gathered be integrated and translated into effective recommendations?

5. What is the most effective service delivery model for vocational assessment for students with learning disabilities? Is curriculum-based assessment more effective than center-based assessment? Is a comprehensive model needed which makes both curriculum-based and center-based assessment available? What are the relative merits and specific indications for the use of each model?

6. At what age or grade is vocational assessment most effective? Is there a different "best age" for the different purposes? For example, is the best age for vocational assessment for predictive/prescriptive purposes different from the best age for treatment purposes? Is the best timeline for curriculum-based assessment different from the best timeline for center-based assessment?

7. What are the critical competencies required of an evaluator in an educational setting. How are these professional competencies best developed?

In summary, what differences can be documented between students with learning disabilities who did/did not participate in vocational assessment? Are LD students who participate in vocational assessment more likely to be enrolled in vocational education programs? More likely to be successful in them? More likely to be satisfied with their placements? Are they more aware of their own skills and interests and how they relate to jobs? More motivated in school? More advanced in career maturity? More endowed with self esteem? More confident of their role in determining their own life situations? Are they ultimately more likely to secure and maintain appropriate levels of employment following school? Are they ultimately more likely to make a successful transition to the world of work?

As was previously noted, transition from school to work was identified as "the educational priority of the 80's" (West, 1988, p. 2). Perhaps evaluating and refining the transition services developed in the 80's should be the educational priority of the 90's.

## CHAPTER IV

### SUMMARY

Vocational assessment services for students with learning disabilities and other mild handicaps have developed and expanded markedly in recent years. This growth has been fueled both by federal legislation and by professional support in the education and rehabilitation literature. Model programs have been established and documented in the literature, attempts have been made to develop a common vocabulary and a common set of theoretical constructs, practitioners and researchers have published opinion papers regarding the numerous issues which have developed regarding this service in educational settings. Vocational assessment has been viewed as a valuable predictive and prescriptive service, as well as a treatment process.

Some of the initial optimism regarding the value of vocational assessment services for this population has begun to be tempered by difficulties noted in its implementation. How effective are vocational assessment services for high school students with learning disabilities? Does vocational assessment generate appropriate predictions and prescriptions for educational planning for these students? Is it effective as a treatment process? What



specific components are associated with positive outcomes?

In this study, the education and rehabilitation literature were reviewed to determine whether research-based answers to these questions can be identified at present. A review of research was based upon searches of several computerized information retrieval systems, as well as printed bibliographies and reference tracking from other publications. Only twenty-five relevant documents (limited to reports of research, and program descriptions with outcome data, regarding students with learning disabilities) from 1970 through 1989 could be identified from this extensive review. Information from the 25 documents was then synthesized and restructured to attempt to answer the identified questions.

There were some indications that vocational assessment is helpful in predicting which students are ready for mainstream vocational education placements, but research at this time is neither consistent nor extensive. No studies addressed vocational assessment's effectiveness in predicting student success in other levels of vocational programming, nor in job placements.

The studies regarding the use of vocational assessment for prescription generally indicated that the assessment process does generate prescriptive recommendations, both for specific placements, and for services, adaptations, or other program elements. The perceptions of educational personnel regarding the usefulness of the

recommendations in the services/adaptations category are mixed, and, even when valued, these recommendations generally are not followed. In contrast, prescriptive placement recommendations generally are implemented. There were some promising indications that these placement recommendations contribute to student success. The quantity of research is very limited, however.

There were also some suggestions that vocational assessment may be useful as a treatment process, particularly in increasing self-knowledge, career/vocational maturity, and grades in school. Possible effects on self concept or self esteem are not well understood, nor are effects in the related areas of school motivation, interest, attitude, or behavior. Research in this area for special needs students in general is extremely limited; for learning disabled students specifically, it is nonexistent.

It was not possible to identify any specific factors (eg. specific assessment model, personnel, techniques, etc.) which are related to positive outcomes in any of the areas addressed. No studies were identified that specifically addressed comparisons related to these factors, and the body of research was too limited for making comparisons among different studies on any of the specific issues identified.

Taken as a whole, these studies suggest some promise regarding the effectiveness of vocational assessment for students with learning disabilities, but at present the research is far from

conclusive.

Following the discussion of the contributions of the current research to answering the identified questions, areas for additional research were identified. Further research is needed on all three questions related to the effectiveness of vocational assessment for this population. In addition, research is needed to determine "best practices" regarding, for example, program models, specific techniques, personnel issues, and age of students assessed.

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